Abstracts

Harnessing Forests for Resilience: Nature-Based Solutions for Disaster Risk Reduction and Development

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Full Professor and Founding Director of the UPLB Interdisciplinary Studies Center

Forests are vital in enhancing resilience to climate change and disaster risks while advancing sustainable development. This presentation explores how forests serve as Nature-based Solutions (NbS) by mitigating floods, landslides, and other hazards through their multifaceted ecosystem functions. With the increasing global emphasis on NbS in frameworks like the Paris Agreement, the Sendai Framework for Disaster Risk Reduction, the Sustainable Development Goals, and the Race to Zero initiative, forests are recognized as pivotal assets for climate adaptation and disaster preparedness.

This talk highlights global trends and initiatives in integrating forests into disaster risk reduction (DRR) and regional development strategies. It also examines the Philippine context, focusing on vulnerability and risk assessments and the critical role of community participation in forest management. Success stories, such as mangrove restoration and reforestation programs, illustrate how integrating forests into national and local plans promotes resilience and economic benefits.

Finally, the presentation offers actionable recommendations to scale up forest-based NbS, emphasizing inclusive policies, community involvement, and robust governance. A call to action urges stakeholders to harness forests' potential to safeguard vulnerable communities and ecosystems, ensuring a sustainable and resilient future. This talk underscores that forests are not just resources for development but are indispensable allies in addressing the dual challenges of climate change and disaster risk reduction.

Forest management for F-DRR functioning

Dr. Yasumasa Hirata
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In recent years, weather-related disasters, which are believed to be caused by climate change, have been increasing in scale, and they are having a significant impact on human social life. In developing countries in particular, the rapid increase in population and productivity has often resulted in the uncontrolled conversion of forest land to agricultural land and the loss of mangroves due to the development of aquaculture ponds, agricultural land, and rice paddies in coastal areas, thereby undermining the disaster prevention and mitigation functions of forests and causing major natural disasters. In order to utilize forests for disaster prevention and mitigation, it is necessary first of all to have an appropriate land use allocation, and at the same time, appropriate forest management is required for forests to fulfill their functions. This presentation will introduce methods and concepts of land use allocation and forest management for F-DRR using remote sensing and GIS.

Risk Changes: A Cloud-based Open Source Platform for Multi-hazard Risk Assessment

Dr. Manzul Kumar Hazarika
Director of the Geoinformatics Center, Asian Institute of Technology (AIT)

Multi-hazard risk assessment (MHRA) is a comprehensive approach to evaluating the risks posed by multiple hazards, considering their potential interactions and cascading effects. In the context of climate change, MHRA becomes increasingly critical as the frequency, intensity, and complexity of natural and anthropogenic hazards evolve. Understanding and mitigating these risks is vital for building resilient communities, infrastructure, and ecosystems.

As the climate continues to evolve, a proactive, inclusive, and adaptive approach to risk assessment will be essential to safeguard humanity and ecosystems against the challenges ahead. We have developed a cloud-based multi-hazard risk assessment platform in open-source called "RiskChanges", which is a Spatial Decision Support System for the analysis of current and future multi-hazard risk scenarios at the local level to recommend suitable risk reduction alternatives. RiskChanges also facilitates a cost-benefit analysis for each of the alternatives to assist users in decision-making.

Community Participation in F-DRR

Ms. Sachiko Takinaga
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The importance of disaster prevention and mitigation using forests is increasing due to concerns that landslides and other damage will increase around the world, especially in developing countries, as a result of climate change and unregulated land use changes.

Many technical issues have been discussed regarding the applicability of mountain slope control technology, or Chisan, in developing countries, and it is also very important to promote understanding and participation of local communities in order to introduce such technology. In this presentation, I'd like to explain the issues that have emerged from the case studies of efforts to promote community understanding, participation, and utilization of mountain slope control technology in developing countries through document review, interview surveys, and field surveys.

Local Efforts in Natural Disaster Risk Reduction through Sustainable Community Forest Management in Vietnam

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Vietnam is highly vulnerable to various natural disasters, including storms, typhoons, floods, flash floods, landslides, droughts, tropical low-pressure, hail, and damaging cold. The Northwest region is one of the country's hotspot areas for such disasters. A household questionnaire survey conducted in a commune in the Northwest region revealed that many local people have a strong awareness of the role of forests in mitigating natural disaster risks. Sustainable management of community forests is a vital strategy for leveraging forests' protective functions. Community forestry has a long history in Vietnam, deeply intertwined with the economic, social, cultural, and customary lives of local communities who live near and depend on forests. As a result, sustainable community forest management has emerged as one of the key forest management regimes in Vietnam. In 2024, community-managed forests accounted for 7.4% of the total national forest area, involving approximately 10,000 local communities. We reviewed national policies and conducted a case study in a commune in the Northwest region to better understand how local people contribute to disaster risk reduction through community forest management. Vietnam's Forestry Law of 2017 explicitly recognizes community empowerment. The law identifies local communities as forest owners who benefit from community forest management through selective logging for personal use (not for trade), collecting fuelwood and non-timber forest products, and receiving payments for forest environmental services. However, these benefits are contingent on adherence to regulations governing forest product harvesting, and payments for forest environmental services are based on forest quality. By protecting forests, local people play a direct role in reducing disaster risks and ensuring sustainable forest management.

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