Title of dissertation			
Studies on addressing challenges and enhancing community engagement in REDD+ implementation in Nepal and India			
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By taking over the reducing emissions from deforestation and forest degradation in developing countries (REDD), the Warsaw Framework for REDD+ established implementation guidelines, including emission reduction monitoring, reporting, and verification, along with safeguards for social and environmental co-benefits, so that externalities are minimized. Since then, REDD+ has gained global traction with various initiatives, pilot projects, and investments aimed at forest preservation, carbon emission reduction, and supporting forest-dependent communities. Over a decade has passed since the inception of REDD+, yet its success remains uncertain, sparking debates on its effectiveness. This study aimed to identify the REDD+ progress and challenges for successful REDD+ implementation by examining two different study sites: Mamit of Mizoram, India, and Dhankuta, Nepal. These sites share similar geography and practice community-based forest management, making them ideal for testing, as both sites meet the criteria for REDD+ projects. Given the significance of community-managed forests in carbon projects, this study identified actions on the ground for sustainable REDD+ projects. The study methodology was based on three approaches: (1) Participatory Rural Appraisal, (2) Household surveys, and (3) Remote Sensing and Geographical Information System (GIS) analyses to fulfill its objectives.

The first step involved assessing the progress of REDD+ in both countries. An indicator-based questionnaire survey involving 63 respondents was conducted in two rounds of consultation meetings at both sites. The findings revealed that both countries are at a similar stage for all five criteria, with Nepal slightly ahead in terms of REDD+ readiness. Institutional readiness has emerged as an area that requires more attention in both countries. While gaps in other readiness areas can be narrowed through capacity development, research, and awareness programs, addressing institutional readiness necessitates greater commitment from government bodies, genuine interest in REDD+, and carbon finance.

This study also identified the key drivers of deforestation and forest degradation at both sites through multi-stakeholder consultations using the problem and solution tree approach. Acknowledging that REDD+ alone cannot address all the drivers of deforestation and forest degradation, this study prioritized the most important ones. In Mamit, shifting cultivation and forest fires have emerged as the primary causes of deforestation and forest degradation, respectively. Fuelwood collection and forest fires were identified as the main drivers in Dhankuta.
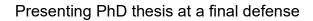
To assess changes in forest cover, this study analyzed land use data from 2010 to 2021, revealing a 2% decrease in forested areas in Mamit due to shifting cultivation and a remarkable 12% increase in Dhankuta, driven mainly by rural-to-urban migration. Both regions, particularly their remote areas, rely heavily on fuelwood for energy, and their livelihoods are closely tied to agriculture. Most households engaged in agriculture lack alternative sources of income,

rendering them highly dependent on forest resources. In Dhankuta, the annual consumption of fuelwood results in an estimated loss of approximately 2 million USD in potential carbon finance from fuelwood burning. A similar scenario unfolds in Mamit, accounting for a potential loss of roughly 1.8 million USD. In both areas, tapping this carbon credit will increase per capita income by approximately 1% and 2 %, respectively. Fuelwood is one of the critical aspects of forest degradation and carbon emissions, and REDD+ must channel its efforts to address this pressing issue effectively.

Furthermore, both study areas faced the risk of forest fires, as identified during stakeholder consultations. The year 2021 was particularly devastating, with Mamit experiencing 675 fire incidents, and Dhankuta recording 42. These fires pose not only a risk to carbon finance but also to the environment and human health. During the same period, air pollution levels increased, with high aerosol optical depth in Dhankuta and elevated carbon monoxide levels in Mamit. These trends were linked to higher temperatures and lower precipitation than average annual norms. Without a comprehensive strategy to minimize forest fires, REDD+ remains risky.

To ensure the success of REDD+ projects in community-managed forests, it is imperative to identify and encourage active participation from forest-dependent communities. This can be achieved by utilizing potential carbon financing through initiatives such as promoting clean cookstoves, afforestation, and sustainable forest management practices. Developing a benefit-sharing plan is crucial for converting carbon financing into tangible incentives for local communities. REDD+ as a result-based payment mechanism can reduce fuelwood consumption, support sustainable forest management practices, reduce carbon emissions, and make communities eligible for carbon payments. The REDD+ approach ensures the long-term sustainability of these strategies, while encouraging site-specific development in an ecologically sensitive manner.

Photos

Presenting PhD thesis at a final defense

Congratulating his success