



Carbon emission reduction initiatives: Lessons from the REDD+ process of the Asia and Pacific region

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ABSTRACT

Carbon emission reduction through land use management and forest-based initiatives such as REDD+ depends on multiple factors, including awareness programs, capacity building and inclusive design, and equitable and transparent benefit-sharing mechanisms. Even after a couple of decades of discussion over the REDD+ process, there have still been many contested issues that need to be resolved. Taking the case of three countries in the Asia and Pacific Region – Vietnam, Nepal, and Fiji, – at different stages of the REDD+, we have mapped the countries' progress toward emission reduction program and its benefit-sharing mechanism, documented the perceived impact of a capacity building program and provided the stakeholders' perspective on the performance of REDD+ program. Our study shows REDD+ participating countries are implementing various REDD+ capacity-building programs, but having a different level of impact from the stakeholders' perspective. Multilevel governance presents challenges for REDD+ outcomes, as REDD+-related policies and legislations are constrained within the forest ministry but not in other sector ministries, leading to both vertical and horizontal coordination issues. Much emphasis has been given to the technical content of capacity-building programs but little has been done to enhance the functional capacity of REDD+ implementers, especially of Indigenous People and Local Communities. The decision-making process on emission reduction benefit-sharing is neither transparent nor inclusive. Although various social safeguard mechanisms are proposed by the studied countries, there is still a huge gap in understanding the impact capacity building programs in inclusive decision-making, and equitable benefit sharing for Indigenous people. REDD+ stakeholders perceived that REDD+ can be a promising financial tool for developing countries and also contribute to non-carbon benefits, but the prospects of benefit-sharing plans are not fairly inclusive. Increasing transparency and accountability through digital platforms, raising the carbon price from \$5/tCO₂, adopting unified safeguards, and strengthening horizontal and vertical collaboration at all levels are pivotal for the REDD+ program to generate manifold environmental and livelihood benefits in the Asia and Pacific Region.

1. Introduction

Forest-based carbon emission reduction initiatives through proper land use practices and sustainable forest management in developing countries came to figure in the Paris Agreement under the United

Nations Framework Convention on Climate Change (UNFCCC). A broader framework of these activities is known as REDD+: Reducing emissions from deforestation and forest degradation and the conservation and enhancement of forest carbon stock, and sustainable management of forests, in developing countries (GCF, 2019; UNFCCC, 2023). As

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a multilevel governance mechanism, REDD+ requires functional collaboration among various international organizations, government and non-government entities, national and sub-national actors, including local people and community groups, spanning through the multiple domains of carbon and non-carbon sectors of conservation and development (Arts et al., 2019; Pinsky and Kruglianskas, 2019; Tien, 2022). Participating countries of REDD+ are required to fulfill methodological and safeguards-related requirements to be eligible for result-based REDD+-related initiatives, which might be affected by the varying capacities, institutional setup, and local circumstances, especially in developing countries (Laudari et al., 2021; Maraseni et al., 2020).

The Emission Reduction Program (ERP) under the Carbon Fund of the World Bank's Forest Carbon Partnership Facility (FCPF) is one of the demonstrative initiatives designed in line with the broader REDD+ framework under the UNFCCC (Maraseni et al., 2020). Altogether 47 tropical developing nations including in the Asia-Pacific region have been involved in the World Bank's ER Program (Duchelle et al., 2019; Maraseni et al., 2020; Shin et al., 2022), and 15 of them have reached the result-based phase by signing the Emission Reduction Payment Agreement (ERPA) by 2023 (FC) Jurisdictional ERPs under the World Bank's FCPF are prominent REDD+ related sub-national level emission reduction initiatives being implemented in several tropical countries (Lee et al., 2018). While the ERPs are multilateral initiatives implemented with multilateral agreements between the World Bank and the respective governments, the involvement of key forestry stakeholders especially Indigenous Peoples and Local Communities (IPLCs) is essential throughout the program cycles (Poudyal et al., 2020; Sherpa et al., 2018).

Local people must be at the centre of climate action, including forest-based carbon emission reduction. However, IPLCs are often being taken as passive recipients of the policies and programs related to emission reduction, including REDD+. Some scholars claimed that the involvement of and consultation with forest-dependent IPLCs in critical milestones including the preparation of the ERP Idea Note, then the ERP Document, and formulation of the Benefit Sharing Plan (BSP) and Environment and Social Management Framework is a prerequisite of emission reduction initiatives (Adhikari and Baral, 2022; FCPF, 2020; Yanai et al., 2020). Several authors (Lawlor et al., 2013; Löw, 2020; Schroeder and McDermott, 2014; Poudyal et al., 2020; Tamara et al., 2022) have emphasized the IPLCs' engagement and capitalizing on their contributions not just to achieving carbon emission targets in reduction initiatives including ERP but also to ensure legitimized, efficient, and equitable distribution of benefits.

Several studies exist on documenting the lessons and learning of the preliminary stage of emission reduction initiatives including REDD+ implementation in developing countries (Atmadja et al., 2022; 2018; Kim et al., 2021; Maraseni et al., 2020;). However, these assessments focus mostly on the methodological and procedural requirements of result-based emission reduction rather than assessing the impacts of capacity-building programs and activities and the status of IPLCs in the BSP mechanisms. BSP mechanisms can be structured by three different approaches: (1) rights allocation-based; (2) input-based; and (3) performance-based (Nawir et al., 2015). For example, reducing carbon emissions can be performance-based, but including Indigenous people, women, and marginalized people can be termed as the rights-based

approach. In further navigating this, recent updates of policy frameworks, institutional arrangements, and fulfillment of the design elements for jurisdictional result-based emission reduction initiatives are lacking (Poudyal et al., 2020). Besides, how IPLCs are engaged in the REDD+ program cycle including in the formulation process of the BSP is not well assessed while some ERP countries are already in the stage of distribution of benefits (Maraseni et al., 2020; Poudyal et al., 2020).

This paper examines ongoing land use management and REDD+ activities in three developing countries of the Asia and Pacific region, including Fiji, Nepal, and Vietnam. Bringing the perspectives of these countries on how ERP is being implemented, what approaches are being adopted in these countries to make the ERP effective and efficient, and how state and non-state actors have perceived REDD+ program is important and necessary not just to accelerate and institutionalize ERP on the ground level but also to achieve multiple objectives of the emission reduction initiative. In light of the limited scholarship on these front, we aim to bring these perspectives by adopting: (a) mapping of the countries' progress on ER Programs, including benefit-sharing mechanisms and inclusion of IPLCs, (b) examining the perceived impact of the REDD+ capacity-building programs, and (c) navigating the perception of REDD+ stakeholders towards the ongoing REDD+ program and associated activities. The result of this study will benefit REDD+ countries, including countries in the Asia-Pacific region in multiple ways. For example, we highlight how important is to involve and empower IPLCs in implementing emission reduction initiatives to restore degraded forests; improve forest governance; and translate the REDD+ aspirations into actions.

2. Methods

This study has taken the World Bank's FCPF-funded emission reduction program as an example of how the countries have performed against implementation requirements of forest-based carbon emission reduction initiatives. A mixed-method approach was adopted to undertake this study. The data was collected through a review of the literature including various reports published by carbon emission reduction initiatives and REDD+ relevant organizations accompanied by a questionnaire survey and a regional-level interaction workshop. The aim of reviewing the literature was to map overall REDD+ progress and to identify gaps and issues in REDD+ implementation while the purpose of undertaking a survey and workshop was to further diagnose the issues and gaps and validate them. We have purposively selected three countries for this study – Fiji, Nepal, and Vietnam because they are implementing World Bank's FCPF-funded ERP, and are at different stages of REDD+ development, which allow us to collect differing perspectives on emission reduction and REDD+ initiatives based on the countries' performance on it. For example, Vietnam is the early mover of REDD+ while Nepal is in the advanced stage of the REDD+ process. While at the same time, Fiji is the late starter of REDD+ in the Asia-Pacific region. The forest resource statistics of these three countries are presented in Table 1.

We reviewed three sub-projects implemented in those countries by different organizations with the help of the World Bank's funding – PanNature in Vietnam, Federation of Community Forestry Users Nepal in Nepal, and Grace Trifam Ministry in Fiji. We reviewed the project documents from those countries and the relevant publications from the

Table 1
General information about forest resource statistics.

Country	Population (million)	Land area (1000 sq. km)	GDP (billion USD)	Forest area (% of land area)	Deforestation average annual (%)*	Terrestrial protected area (% of land area)
Vietnam	91.7	310	193.6	47.6	-1.6	6.5
Nepal	28.5	143	21.2	40.4	0.5	22.9
Fiji	0.90	18	4.4	55.5	0.0	4.4

* Average annual deforestation rate for 2000–2015; Source: (DFRS, 2015; FCPF, 2022; GCF, 2019)

Table 2
Countries' progress on the REDD+ program.

Countries	REDD+ strategy	Forest Reference (Emissions) Level,	National Forest Monitoring System	Safeguard Information System	Summary of information on safeguard (MRV)	Submitted a BUR technical annex on REDD+?	Is REDD+ included in NDC?	2030 NDC target	NDC NZ target
Vietnam	Completed	Completed	Completed	Completed	Completed	Yes	Yes	43.5 %	2050
Nepal	Completed	Completed	Completed	In progress	In progress	–	Yes	43.5 %	2045
Fiji	–	–	–	–	–	–	30 M tree by 2035	30 %	2050

Table 3
Countries' overview of emission reduction program and benefit sharing plan documents.

Country	Program name	Program location	Program area (Mha)	Deforestation Or emission for RL	Major drivers of deforestation	Major interventions	Overall cost (USD)	Major funding Sources	The total target of ERP (2019–24)	FCPF C-Fund Agreement*	REDD+ benefit sharing plan
Vietnam	Vietnam's North Central Region Emission Reductions	6 provinces in Vietnam's North Central Region	>5	157,340 ha (gross loss) (2005–16)	Rubber (3491 ha/yr) & cassava (1318 ha/yr) plantation	Policy reform, SFM, climate smart Agric	\$312.8 million	ODA/WB (\$76.5 M) JICA, USAID VN Govt	19.78 MtCO2e	Up to \$51.5 million for reductions of 10.3 MtCO2e	50 % Local communities 21 % FMB & SFC 17 % Private sector 7 % Operational & management cost 5 % Performance buffer
Nepal	People and Forests: SFM-Based Emission Reduction Program in the Terai Arc Landscape	5 provinces and 13 districts of Nepal's Terai Arc Landscape	2.2	Average emissions 1.56 MtCO2e/yr (2004–14)	Migration, Unplanned settlement, Encroachment, Infrastructure development.	Expand CF & CFM, Private forest, Pro-poor leasehold forest, Alternative energy & Integrated Land Management	\$184 million	\$45 M Government \$13 M TAL \$7.5 FIP \$13 CF/CFM	13.2 MtCO2e	*Up to \$45 million for reductions of 9 MtCO2e	10 % Operation & management 80 % Govt entities and community-managed forests groups including CFUGs 5 % Forest-dependent HHs outside CFUGs 5 % Private Forest owner (in-kind seedling, technical input, etc.)
Fiji	Emission Reductions Program of Fiji	11 provinces, including the islands of Viti Levu, Vanua Levu, and Taveuni	1.7	Average emissions 1.636 MtCO2e/yr (2006–16)	Conversion to Ag (taro & kava), Unplanned infrastructure, Conventional logging, Mining.	Integrated LU Planning, Community-based A/R, Agroforestry	\$43.18 million	Government Fiji Pine Ltd, Fiji Hardwood Ltd WB-CF	3.5 MtCO2e	Up to \$12.5 million for reductions of 2.5 MtCO2e	85 % Beneficiaries (owners), 10 % Operational cost 5 % Performance buffer

* Crediting period of the emission reduction payment agreements in Vietnam and Fiji is six-year (2019–2024) and in Nepal is five year (2020–2025). Source: (FCPF, 2023a, 2023b, 2023c)

World Bank- FCPF, governments' REDD+, and emission reduction focal ministries and departments.

After identifying the gaps and issues from the review of the literature and project documents, a questionnaire was developed and administered to the sub-project teams from the three countries (stated in the result section: Table 4 and Table 5). The same questionnaire was administered to all three groups from three countries, however, the responses from the groups were recorded and analyzed separately. The groups consisted of CSOs working for the sub-projects, community members of the project implementation areas, and focal persons for FCPF in three countries who were engaged in the sub-project since the beginning and can represent the views of people in the respective project areas. The groups were assessed from a regional-level interaction workshop "FCPF-Capacity Building on REDD+ for CSOs and Local Communities in East Asia and the Pacific Region" held in Bangkok, Thailand from 12 to 14 February 2023. In addition, representatives from some indigenous groups' organization, such as The Asia Indigenous Peoples Pact, Tebtebba (Indigenous Peoples' International Centre for

Policy Research and Education), and Nepal Federation of Indigenous Nationalities were also participated in the workshop. The teams of the sub-projects were asked to discuss the questionnaire within their team about their perception towards different aspects of ERP (REDD+) based on past and current experiences as well as prospective future scenarios in the form of a consultation workshop. The questionnaire was developed to assess the impact of the capacity-building program on changing the understanding level of IPLCs on various aspects of REDD+. The participants' responses were measured on five scales (very low, low, medium, high, and very high). During the consultation, the participants were requested to articulate their observations and experiences so that everyone could share their views and ideas freely and openly. We evaluated the perception with the response provided by the participants to the set of statements associated with the carbon benefit, non-carbon benefits, and development of the benefit-sharing plan on a five-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree; Table 5).

The collected information, including the stakeholders' impressions

Table 4
Difference in stakeholders' understanding before and after implementing a capacity-building program.

Table 4a: Vietnam										
Capacity building sub-project enabled civil society and local communities to:	Before implementing the sub-project					After completing the sub-project				
	Very low	Low	Medium	High	Very high	Very low	Low	Medium	High	Very high
Understand the climate change phenomenon				x					x	
Understand the impacts of climate change on civil society & local communities			x						x	
Understand the REDD+ mechanism and allow communities to voice their concerns and objectives			x						x	
Realize their respective roles and responsibilities related to climate change mitigation and adaptation			x						x	
Participate in REDD+ processes				x						x
Engage with REDD+ decision-makers				x						x

Table 4b: Nepal										
Capacity building sub-project enabled civil society and local communities to:	Before implementing the sub-project					After completing the sub-project				
	Very low	Low	Medium	High	Very high	Very low	Low	Medium	High	Very high
Understand the climate change phenomenon		X						X		
Understand the impacts of climate change on civil society & local communities			X						X	
Understand the REDD+ mechanism and allow communities to voice their concerns and objectives		X							X	
Realize their respective roles and responsibilities related to climate change mitigation and adaptation		X						X		
Participate in REDD+ processes	X								X	
Engage with REDD+ decision-makers	X							X		

Table 4c: Fiji										
Capacity building sub-project enabled civil society and local communities to:	Before implementing the sub-project					After completing the sub-project				
	Very low	Low	Medium	High	Very high	Very low	Low	Medium	High	Very high
Understand the climate change phenomenon			x							x
Understand the impacts of climate change on civil society & local communities			x							x
Understand the REDD+ mechanism and allow communities to voice their concerns and objectives			x							x
Realize their respective roles and responsibilities related to climate change mitigation and adaptation			x							x
Participate in REDD+ processes				x					x	
Engage with REDD+ decision-makers				x					x	

and observations about ERP, best practices, associated REDD+ challenges and constraints, and feedback were scrutinized based on the thematic analysis and the perceived (and/or possible impact of ERP activities and the future performance of the emission reduction initiatives were presented and thoroughly discussed results and discussion sections. Both qualitative and quantitative analytical tools were employed for analyzing the data.

3. Results

3.1. Mapping of the countries' progress on REDD+ and benefit sharing

The studied countries are in different stages of developing the preparatory requirements including the formulation of REDD+ Strategy or Plan of Action; Forest Reference (Emissions) Level; National Forest Monitoring System; Safeguard Information System – SIS; summary of information to involve in result-based REDD+ and other emission reduction initiatives, (Table 2). Vietnam has already submitted its Biannual Update Reports (BURs) and technical annex on REDD+ to the UNFCCC. Nepal has completed three out of the five elements and is in the process of developing SIS and a summary of information on Cancun safeguards, and is preparing BUR and an initial Biennial Transparency Report (BTR) to be submitted by the end of 2024.

The studied countries are involved in the World Bank's FCPF-funded ERP as a result-based emission reduction initiative. Table 3 shows a brief overview of ERP and BSP in the three countries.

Jurisdictional-level ERPs have been implemented in three countries with varied geographical coverage, such as Vietnam with over 5 million

ha (Mha), Nepal with 2.2 Mha, and Fiji with 1.7 Mha. Baseline data for estimating emission reference level was 11 years for Nepal and Fiji, and 12 years for Vietnam, during which period Vietnam witnessed the loss of over 0.15 Mha forestland, and average annual emissions from Nepal and Fiji were 1.56 and 1.64 MtCO_{2e}, respectively. Although Vietnam witnessed a gross loss in forest areas, there was a net increase in natural and planted forest areas due to massive afforestation activities.

The overall cost of the ERP is the highest in Vietnam (US\$312.8 million), followed by Nepal (US\$184 million) and Fiji (US\$43.2 million). Emission reduction activities are expected to be implemented with funds generated collaboratively from the respective governments, private sectors, local communities (e.g., forest groups), the World Bank in all countries, and some other donors such as World Wildlife Fund – Terai Arc Landscape (Nepal), Japan International Cooperation Agency and The United States Agency for International Development (Vietnam). Vietnam was highly enthusiastic in setting the targets of emission reduction of 19.72 MtCO_{2e}, which was set as 13.2 MtCO_{2e} in Nepal and 3.5 MtCO_{2e} in Fiji for 2019–2024.

Vietnam reduced 10.3 million tons of carbon emissions between February 1, 2018, and December 31, 2019. As per the emission reduction monitoring report, Nepal reduced 2.3 million tons of CO₂ between 22 June 2018–31 December 2021 (World Bank, 2023). Vietnam has received a \$51.5 million payment for verified emission reduction and has been the first country in the East Asia Pacific Region to receive the result-based payment from the World Bank's FCPF, while Nepal will receive after the verification of emission by the World Bank-accredited verifier.

BSP mechanisms have been devised differently in the three countries,

Table 5
Perception of the sub-project team about the future of the REDD+ program.

Various statements about the REDD+ program	Vietnam	Nepal	Fiji
General Statements			
A REDD+ project will reduce emissions compared with business as usual	5	5	5
Carbon sequestration due to the REDD+ project will likely remain permanent (10 years)	4	3	4
If REDD+ is successful in a project area, there is a chance of carbon emissions from other forest areas (leakage)	2	4	3
REDD+ will impose high opportunity costs on users compared to business as usual	2	5	4
REDD+ is a financing tool for developing countries	5	5	5
Statement on non-carbon benefits of REDD+			
A REDD+ project will support economic development	4	4	5
A REDD+ project will reduce poverty	4	4	5
A REDD+ project will improve biodiversity	4	4	5
A REDD+ project will improve tenure rights	3	3	5
A REDD+ project will improve forest governance	4	4	5
A REDD+ project will improve infrastructures (roads, schools, etc.)	3	3	5
Statements on REDD+ and Emission Reduction Initiatives Benefit Sharing Plan			
BSP of REDD+ is developed with the consultation of local stakeholders	4	1	3
All REDD+ stakeholders know the proportion of benefits proposed by BSP	2	1	3
All REDD+ stakeholders are happy with the proposed proportion of benefits of BSP	3	1	3
All REDD+ stakeholders are happy with the REDD+ benefit design and distribution process	3	1	3
BSP provides a fair share of REDD+ benefits to local stakeholders	4	2	3
BSP has a provision to provide REDD+ benefits to women	4	4	4
BSP may help reduce deforestation and improves forests condition/area	4	5	3

yet the countries have ensured at least 70 % of these funds flow to the local communities. From the broader perspective, current BSP mechanisms reflect the right-based allocation of funds except a few proportions allocated for operational and management costs. Nonetheless, Nepal has adopted an inclusive approach by incorporating forest-dependent households and supporting farmers for plantation and forest conservation, providing 5 % each for them. However, Vietnam and Fiji have adopted the performance buffer approach (5 %), in addition to the performance-based payment. Considering this, BSP mechanisms are found to be justified differently by the different countries, considering the peculiarities in forest management regimes and differences in forestry institutions; however, a performance-based approach is common in all three countries as explained by the higher proportion of fund allocated to the project implementing communities.

3.2. Perceived impact of REDD+ capacity building program

The understanding level of local communities has been improved across all areas including climate change, REDD+ implementation process, and capacity development (Table 4). Substantial improvement was reflected in 'Understanding the REDD+ mechanism and allow communities to voice their concerns'. Understanding of the climate change phenomenon among the local communities was not changed in Vietnam but from low to medium in Nepal, and medium to very high in Fiji. The capacity-building activities were found to be effective in enhancing understanding of the climate change phenomena as well as the realization of the role of local communities in addressing climate issues in all three sub-projects. However, no change occurred in local communities' participation in the REDD+ decision-making process in Fiji. In contrast, Nepal and Vietnam witnessed at least one step improvement in the engagement of local communities in REDD+ decision-making processes.

3.3. Perception of REDD+ stakeholders toward the REDD+ performance

We observed varied perceptions about the performance and effectiveness of REDD+ and emission reduction initiatives in contributing to reducing climate change, improving livelihood, and enhancing participation and inclusion (Table 5). We received a mix of observations of the participation of three countries towards the effectiveness of REDD+ and emission reduction initiatives, yet all the participants expected that REDD+ would reduce emissions than that of the business-as-usual scenarios. Likewise, although there has been doubt that carbon

sequestration will remain stable over the next ten years, all participants see REDD+ as a "financing tool for developing countries" as shown by the rating of 5 from all participants.

The participants expressed their strong dissatisfaction with the engagement of and consultation with IPLCs in the development of BSP. The participants especially from Nepal strongly disagreed with the consultation process, distribution process, and the proposed share of the BSPs to the local communities. None of the participants agreed that they were aware of the share that is allocated by BSPs of their countries, Fiji being neutral, Vietnam disagreed, and Nepal strongly disagreed with the statement. While participants from all countries were positive about REDD+ (i.e., ongoing Emission Reduction Program) and were optimistic about the non-carbon benefits of REDD+, the participants of Vietnam and Nepal were skeptical that the REDD+ project would improve tenure rights and infrastructures.

4. Discussion

4.1. Reflecting on the REDD+ performance in Asia Pacific

Studied countries possess different paces of development and implementation of REDD+ programs. Vietnam has already developed preparatory methodological documents (i.e., Warsaw Framework) while Nepal is working to develop the status of a 'safeguard information system' and 'the summary of information on how all of the safeguards are addressed and respected' is still in progress. In contrast, Fiji has not yet endorsed the country's REDD+ strategy. Our study shows that Nepal's progress is low in terms of well-set-up REDD+ institutional arrangement compared to late mover (Fiji) and early mover (Vietnam) despite investing a huge budget in capacity development and receiving more financial support from REDD+ donor agencies (see Table 3). This indicates that Nepal's performance on REDD+ is largely impacted by inadequate capacity building, which is being reflected since the REDD+ readiness phase (Cadman et al., 2017; Maraseni et al., 2020). For example, it took Nepal nearly ten years to finalize the REDD+ Strategy, National Forest Monitoring System, and the REDD+ benefit sharing plan. Safeguard information systems are still being developed and the BSP is yet to operationalize for the distribution of the first carbon payment is yet to although Nepal's REDD+ readiness phase was started in the late 2000s. While Vietnam and Nepal are in the process of distributing carbon benefits among the beneficiaries involved in the ER Program, we recommend that future research should investigate the social dimensions of operationalization of BSP. Our study asserts that other

REDD+ countries in the Asia and Pacific region could benefit from the experience gained by the countries in designing inclusive REDD+ initiatives and associated architectures.

Our study also reveals that benefit distribution is a major concern among REDD+ stakeholders, not just to enhance social equity but also to maximize emissions reductions through the continued involvement of local stakeholders in the REDD+ process (Angelsen, 2017; Rey Christen et al., 2020). To meet equity criteria, Nepal BSP allocated 5 % of carbon benefit for poverty alleviation (i.e., for forest-dependent households outside community forest users' groups), which is lower than other countries such as, Indonesia allocated 10 % for rewarding historical forest protection (National Park/village/community) (MEF- Indonesia, 2020). Likewise, Chile allocated 25 % of carbon payment to invest in regions that have limited capacity to start projects on their own, and in Ghana, carbon payment is only given if a project meets the minimum percentage of women participants (CONAF, 2020; FC- Ghana, 2020). However, proposed provisions in BSP in the Asia Pacific region have some issues associated with the allocation of benefits targeting marginalized forest-dependent communities including women and indigenous peoples. BSPs of the studied countries were found to be devised by government entities and donors in consultation with some selected CSOs where the representation of IPLCs was very low. In addition, BSPs are designed in a complex way that many of the key stakeholders do not know the details of BSPs, especially the proportion of benefits to be shared after carbon credit payment and the decision-making process of BSPs, which could fail to address the expectation of local communities over the REDD+ and carbon benefits (Wong et al., 2019) and may derail whole REDD+ process.

Reflecting on the BSP mechanisms, countries were found to be adapting a mix of right-based and performance-based, largely ignoring the input-based approaches. For example, during the REDD+ pilot phase, Nepal followed the former two approaches, as 60 % of carbon payment weight was given to the inclusion of the poor, women, and IPLCs, and another 40 % for carbon stock and carbon increment (Maraseni et al., 2014). Similarly, BSP mechanisms in the three sub-projects (Table 3) are a mix of right-based approach, accompanied by the performance-based approach at the project implementation level. Although the REDD+ is structured as a performance-based payment mechanism, input-based approaches are also instrumental, especially at the small scale at the local level (Angelsen, 2017). Moreover, while designing BSP, people often ignore different types of REDD+ related costs — opportunity costs, implementation costs, and transaction costs, which are disproportionately distributed among multiple stakeholders (Luttrell et al., 2018). Consideration of additional costs related to meeting safeguard concerns besides those costs and their bearers in designing BSP can encourage forest stakeholders, especially IPs and Local forest groups and members of marginalized households to engage in emissions reduction, and at the same time, increase the profits of investors and landholders (Rai et al., 2017).

Stakeholders in our study further suggest that: (1) the current carbon price of \$5/tCO_{2e} is too low, and (2) all three types of costs for implementing REDD+ activities are rising. However, 'transaction costs,' which encompass program establishment, operation, measurement, reporting, verification, monitoring, and safeguards, are growing rapidly. All FCPF countries must adhere to UNFCCC and World Bank safeguards. This dual requirement further lowers the already low-priced carbon benefits. Thus, increasing the carbon price and adopting a unified safeguards approach, as seen in Honduras and Peru, becomes necessary.

4.2. Perceived impacts and prospects of the REDD+ readiness program

The preliminary readiness activities of the World Bank FCPF-funded emission reduction programs were found generally influential, especially in enhancing a basic understanding of climate change phenomena and the REDD+ process among the government authorities and local communities in three countries. The capacity-building program of the

readiness phase was found to be relatively more successful in improving the understanding level of REDD+ stakeholders in Fiji as compared to the other two countries. The reason behind this could be that Fiji was a late mover in REDD+, so the level of understanding can be increased in the initial stages such as their growing understanding of the climate change phenomenon, including the impact of climate change, the importance of REDD+ and its implementation process, and recognition of local communities' roles in REDD+ process.

The Government of Nepal has emphasized nationwide implementation of REDD+ internalizing its environmental and social significance informed by the World Bank FCPF readiness and result-based initiative (GoN, 2024). However, there is no adequate realization IPs and LCs' participation in the REDD+-related regulatory arrangement and decision-making process even in early mover countries, implying that REDD+ initiatives including the World Bank FCPF-funded interventions are less effective for bringing local communities in the REDD+-related regulatory and policy process (GoN, 2019; Poudyal et al., 2020). Similarly, traditional knowledge and customary practices exercised by IPs have not been legally recognized in studied countries while these are essential safeguard requirements for high-integrity result-based REDD+ initiatives (Lofts et al., 2021). This further suggests that REDD+ initiatives have limited their interventions only to inform and educate the local communities about REDD+ and Climate Change but have failed to create and engage in Rights-based REDD+-related dialogues and decision-making platforms (Bouthavong et al., 2017; Mbeche, 2017; Paudel et al., 2014).

Unlike in Fiji, the participation of stakeholders in REDD+ processes and decision-making changed to a very high level in Vietnam which supports justifying why Vietnam has progressed in REDD+ by fulfilling all the requirements for result-based payments (Minang et al., 2014; Pham et al., 2021, 2019). Onboarding of all the stakeholders in the REDD+ decision-making process has shown to be helpful in the early progress of the REDD+ program. Although the stakeholders' understanding of various aspects of REDD+ depends on the socio-cultural context, education level, and economic well-being of the communities, awakening local people for climate actions and bringing all the stakeholders together for transparent decision-making would be a promising avenue for successful REDD+ program implementation and its sustainability. REDD+ capacity-building programs might not be the only reason for changing the level of understanding of the stakeholders because it can also be affected by numerous other socio-economic changes, including globalization and other factors. Nevertheless, perception towards REDD+ might have been highly influenced by the programs implemented in the sub-project areas, and accordingly, they possessed different perspectives towards carbon and non-carbon benefits and benefit-sharing mechanisms.

4.2.1. Carbon benefits of REDD+

Stakeholders' perspectives on REDD+ indicate that this program will reduce emissions and it can be a promising financial tool for developing countries, as agreed by the stakeholders from all three countries (Table 5). It might be because the narratives of REDD+ start with the emission reduction mechanisms, so it must be at the center of the program implementation approach and also people are convinced by the framework of the implementation of the program (Johnson, 2021; Wong et al., 2019). However, the interesting part is people also believe that it could be a financing tool for developing countries although it has been claimed that REDD+ financing is still uncertain and the funds have not been channelled to the local communities (except for Vietnam of the studied countries) as per the commitments (Maraseni et al., 2020; Morita and Matsumoto, 2023). There hasn't been a common perception about the long-term impact of REDD+ on emission reduction and carbon removal, especially since stakeholders from Nepal were neutral to this. The reason could be that REDD+ initiatives including the World Bank FCPF ER Program in Nepal were not enough to convince stakeholders about its long-term project impacts due to their slow progress of carbon

monitoring and benefit distribution (Laudari et al., 2018; Satyal et al., 2019).

In comparison to Nepal and Fiji, stakeholders from Vietnam perceived that REDD+ won't lead to leakage problems, and the opportunity costs for REDD+ implementation would not be much higher than the business-as-usual scenario. This scenario might indicate that the REDD+ program in Vietnam is well set and has a clearly defined scope of implementation that does not allow any space for leakage and/or loss of economic opportunity (Ngo et al., 2020; Satyal et al., 2019). Or, maybe it is too early to see the leakage problem in the project areas (Pham et al., 2021; Streck, 2021). Perhaps, it could also be a reason that the stakeholders from Nepal and Fiji were more skeptical about the leakage problem and opportunity costs.

4.2.2. Non-carbon benefits of REDD+

None of the teams (participants) disagreed with the statements about the non-carbon benefits of REDD+. For instance, all the team agreed or highly agreed (except on a few neutral occasions) that REDD+ will support economic and infrastructure development, reduce poverty, improve biodiversity, and ensure tenure rights and governance. This scenario highlights the greater opportunities for the REDD+ program to make a synergy in the overall development of the nations if it is implemented in an inclusive, efficient, and transparent manner (Bastos Lima et al., 2017; Pham et al., 2017).

Although the participants from Nepal and Vietnam didn't disagree that REDD+ will generate many non-carbon benefits, they also didn't strongly agree that it will generate the non-carbon benefits. This might indicate that although REDD+ has been claimed to generate substantial co-benefits, it may not be the case all the time (Arts et al., 2019; Wong et al., 2019). Additionally, the reason behind being neutral to the statements of the contribution of REDD+ in infrastructure development and tenure rights could be that REDD+ can jeopardize the decentralized forest governance, especially in Nepal and the contribution to infrastructure development does not seem sustainable with the current implementation mechanisms in the Nepal and Vietnam (Morita and Matsumoto, 2023; Ojha et al., 2019). Stakeholders from Fiji, however, strongly agreed to all the statements of non-carbon benefits of REDD+ which might be because those non-carbon benefits are well mentioned in the program documents but they still need to wait until what the implementation and outcomes in the field show (Avtar et al., 2022; Maraseni et al., 2020). Non-carbon benefits seem to be dependent on not only how the program is structured but also how it is implemented and how the social and economic safeguards are put in place for REDD+ implementation. Nevertheless, it is too difficult to ascertain the performance of REDD+ in the generation of non-carbon benefits while the quantity of carbon emission is the major metric of the payment. Besides, non-carbon benefits are not generally included in the REDD+ baseline (or, Forest Reference Level) nor be part of measurement, reporting, and verification (MRV). In this regard, we strongly advocate including non-carbon benefits as the mandatory provisions of MRV.

4.2.3. Perspectives on the benefit sharing plan

Dissatisfaction among participants with the current provision and development process of BSPs might lead to the failure of achieving an inclusive and equitable REDD+ benefit-sharing mechanism in the region. Although Fiji was found to be neutral towards various statements about BSPs, Nepal strongly disagreed with the statements, especially the proposed benefit allocation proportion and representation of IPs and LCs in benefit distribution decision-making arrangements (e.g., Forest Development Fund Operation Committee defined in rule 109 of the Forest Regulation, 2022). Participants from Nepal reported that the mechanism is not transparent on one hand, and it is designed by a limited number of government actors and donors without broader consultation, especially during determining the benefit proportion among the relevant stakeholders on the other. It indicates that the benefit-sharing mechanisms can be a prominent issue in future pathways

of the REDD+ program if it is not improvised with ensured transparency and an inclusive decision-making process (Nawir et al., 2015; Poudyal et al., 2020; Weatherley-Singh and Gupta, 2015). In a country with contested issues of governance and financial hardship, including those from the Asia Pacific Region, there is a high tendency of elite capture over decision-making leading to a non-transparent benefit-sharing mechanism, which ultimately can fail inclusive and equitable REDD+ (Chomba et al., 2016; Isyaku et al., 2017; Khatun et al., 2015). This might be one of the main reasons that some stakeholders representing the Asia and Pacific countries were not convinced of the existing mechanisms of BSPs and were pessimistic about the future REDD+ performance.

4.3. Challenges and limitations

As per the perception expressed by the interviewees, preparatory and readiness programs for REDD+ have been crucial in imparting to the communities' basic knowledge of REDD+ process concerning climate change mitigation (Kim et al., 2021; Morgan et al., 2022; Sharma et al., 2020). The enhanced awareness of the REDD+ process among governmental organizations and donor-supported civil society organizations is important for effective REDD+ implementation (Cadman et al., 2017; Nuesiri, 2016; Pham et al., 2021). The participants in our study also agreed that the present level of REDD+ development in their countries was attributed to the discussion of emerging issues of REDD+ and potential pathways among relevant stakeholders to better prepare for REDD+ program implementation. However, the research participant perceived major gaps exist in capacity, ownership, and understanding especially between the government authorities, IPs, and local communities, and urged to address to ensure the sustainability of REDD+ and other emission reduction programs.

Consisting with the view of research participants, readiness activities, and capacity-building programs implemented by the World Bank – FCPF, UN-REDD, and other initiatives are still inadequate to accommodate the voices and address the needs of IPLCs at the ground level (Bayrak and Marafa, 2016; Schmitt and Mukungu, 2019). One reason could be the programs have targeted government organizations (civil servants) and civil society elites thereby there is not adequate space for the mass inclusion of IPLCs (Awung and Marchant, 2018; Dawson et al., 2018; Howson, 2018).

A well-known risk of project-based capacity-building programs is that they report their achievement based on the events they organized but not on the outcome/impact that how much additional knowledge/skills have been added to the implementing communities at the field level. While doing so, project operators might not be able to identify and pick up the real participants for the capacity-building program but could engage those who are readily available and handy to support their event-based achievements. Another reason could be that capacity-building programs are focused on enhancing technical capacity but not on functional capacity (Fujisaki et al., 2016; Morgan et al., 2022). Thereby, the content and approach of those capacity-building programs do not comply with the knowledge gap and understanding levels of different stakeholder groups. In this context, we advise that education and training about policy, rules, programs, project management, and governance should be put at the central part of REDD+, especially for IPLCs. Further, investment in higher education and vocational training packages for nature-based solutions, including REDD+, might be effective in expediting awareness and capacity building on a large scale.

Many stakeholders still do not embrace the multilevel nature of governance of REDD+ which might affect synchronizing required efforts and elements of the REDD+ program (Maraseni et al., 2020; Rodriguez-Ward et al., 2018; Shin et al., 2022). There is coordination failure between different sectors and levels within a country (Fujisaki et al., 2016; Laudari et al., 2022; Maraseni et al., 2020). This was reported especially by the Nepal participants, whereby the REDD+ process is not internalized by the sub-national forest government authorities.

This is partly because carbon rights are retained by the federal government while forest management rights are with the provincial government (GoN, 2019). Another reason that REDD+ is not being internalized at sub-national is because of a complex REDD+ benefit-sharing mechanism (Aryal et al., 2024).

REDD+ is regarded as a strategy for achieving emission reduction included in the policy document (e.g., Nationally Determined Contribution—NDC and Long-Term Strategy for Net Zero Emission) and institutional domain of forest ministries in many countries but not mainstreamed in the policies and programs of other sectors and ministries and at sub-national levels. For example, agroforestry is a key intervention in emission reduction in many countries, which falls under the common domain of agriculture, forestry, energy, industry, and others (Aryal et al., 2023); however, the uptake of REDD+ by only one ministry has been a serious issue in recent years. In this regard, it is very crucial to build and maintain vertical as well as horizontal coordination at different levels and sectors.

Maintaining transparency throughout the REDD+ process, especially in the development of BSP is a critical for REDD+ (Isyaku et al., 2017; Poudyal et al., 2020; Rakatama et al., 2020; Weatherley-Singh and Gupta, 2015). Although the essence of REDD+ is to promote result-based payment, its pathway is largely dictated by and governs how well the REDD+ recognizes and respects IPLCs through its transparent institutional arrangement for BSP (Awung and Marchant, 2020; Poudyal et al., 2020). More specifically, the extent of the REDD+ benefits, representation, and the process of benefit distribution to the grassroots level define the successful trajectory of REDD+ to a greater extent (Ken et al., 2020; Villhauer and Sylvester, 2020). However, the present status of the BSP has been likely a black-box model for many of the REDD+ stakeholders, as reported by many research participants in this study. One can wonder if at least 70 % of the fund is mobilized to the local level why should there be an issue with benefit sharing and how it confronts the ambition of local people. The benefits however are not channelled directly as kind or cash support to the community people, but the benefits are delivered in terms of development programs, forest management, capacity building, or other livelihood support programs. The problem is with the distribution mechanisms, administrative requirements, and technical complexities of those programs which are not devised in consultation adequately with IPLCs. In addition to the implementation costs of REDD+, inappropriate distribution of other costs such as transaction costs, safeguards and administrative costs, and opportunity costs among different stakeholders and communities is also part of the dissatisfaction among certain communities and stakeholders. Furthermore, the operationalization of BSP and benefit sharing based on performance is not as simple as the input-based payment where the benefit is distributed to the people or community based on their actions or inputs for emission reduction. Technical requirements and procedures to justify the outcome or performance of the emissions reduction with additionality activities are too complex where government authorities, donors, and experts dominate the whole process. In addition, we agree with Ece et al. (2017) that the decision-making in REDD+ is neither free and prior nor informative and democratic consent-based. REDD+ cannot succeed with such a low level of consultation especially in the BSP finalization and along with the unavoidable right-holders. As suggested by the research participants, inclusive decision-making and equitable and fair distribution of benefits should be ensured not just for enhancing participation in REDD+ but also to maintain the integrity and transparency of the REDD+ program.

We acknowledge that our research had limitations on some fronts. For example, our study has not adequately captured developing countries' perspectives on REDD+ because of the limited representation of developing countries located in the Asia and Pacific region in the study. Although our study has attempted to capture the efficacy and effectiveness of the emission reduction initiatives (i.e., REDD+ program) from REDD+ stakeholders' perspective, we suggest undertaking further research on this front by bringing perspectives of several other REDD+

countries which are at different stages of the result-based REDD+ process. Countries' perspective of impact of capacity building on REDD+, in this study, is largely based on the perspective from civil society organizations, meaningful participation of IPLCs in the consultation process would enrich our findings. While discussing the issues with transparency in BSP mechanisms, future research on how the benefits is channelized to the household level at the local communities would shed light on the finer details of the issues associated with BSP and would be crucial in (re)designing BSP mechanisms in the future. Besides, consideration of differing socio-economic contexts would be insightful in mapping the progress of REDD+ as it would affect overall governance and implementation efficiency of the program. As REDD+ is being facilitated and implemented with greater support from state, non-state, and (inter)national donor agencies in the Asia and Pacific region, we acknowledge that our research has missed navigating how and to what extent other (inter)national initiatives have shaped the REDD+ process of the studied countries. For instance, UN REDD+ initiatives, the LEAF Coalition, and the Green Climate Fund have also been crucial in capacity building in some countries in the Asia Pacific, but we couldn't navigate stakeholders' perspectives on those initiatives. We suggest that future research should comprehensively explore how (inter)national REDD+ related policy and programmatic arrangements vis a vis efforts of state and non-state REDD+ initiatives and efforts have shaped and institutionalized the REDD+ process on the ground in the Asia and Pacific region.

Exploration of how and to what extent REDD+ is impacting both at local as well as individual levels, where greater efforts are being made to conserve and protect the forests by compromising livelihood and development opportunities, should also be the scope of future research. Unpacking these issues is important and urgent in the context where REDD+ is blamed primarily as carbon-focused and ignorant to other aspects of forest-dependent poor and indigenous peoples, who have been historically managing the forests. Despite the limitations, we however assert that our findings are crucial in terms of understanding the country's progress in implementing the REDD+ and deciphering and untangling unforeseeable issues that may derail countries' overall result-based REDD+ process. Further, the findings of field-level experience and feedback over the capacity-building program and reflection towards the BSP elucidate that the future of REDD+ depends on how the countries build its institutional arrangement and functional mechanisms to ensure capacity building of IPLCs, transparency, and coordinated efforts in multilevel governance, and just and equitable benefit sharing mechanisms.

5. Conclusions

Sustainable land use practices through REDD+ initiatives have been portrayed as a viable means of emission reductions globally including in Asia Pacific Regions. Countries in our case studies have differing progress on the result-based REDD+ process because of the varying efficiency and inconsistent performance of REDD+ across the countries. For example, Nepal initiated the REDD+ process about 20 years ago, but its relative progress is quite slow compared to Fiji and Vietnam despite the country investing huge financial resources in REDD+. A lack of coordinated efforts and mutual understanding of the multilevel governance of REDD+ could be attributed to this backlog. Countries in the Asia Pacific region can get insights for expediting their REDD+ process through the experience gained by REDD+ early movers, including Vietnam through south-south-north collaboration and knowledge sharing. Besides, efforts at capacity building are not enough to inform evolving aspects of REDD+ and similar emission reduction initiatives, especially for the IPs and LCs who are real forest managers and beneficiaries of REDD+. Donors and other development agencies are capturing civil society elites and influential government employees but ignoring IPLCs and impartial research institutions which has put a serious challenge in designing fair, transparent, and inclusive REDD+

programs.

Capacity building programs have shown to be effective in the initial years of implementation (Fiji) as compared to the others (Nepal and Vietnam), implying that the programs should be taken as a rigorous process and adaptive to the evolving REDD+-related decisions made international level such as at the Conference of Parties of UNFCCC. It is evident from our study that REDD+ is perceived as an approach for emission reduction through financing for sustainable forest management in developing countries, yet it needs to be improvised in design and implementation to embrace both carbon and non-carbon benefits simultaneously. Similarly, differing perceptions of stakeholders from different countries towards current and future REDD+ performance reinforce a notion that REDD+ is not a stand-alone program and should be integrated with other conservation and development initiatives of the countries.

Although REDD+ stakeholders are optimistic about the potential impact of the REDD+ program for emission reduction and non-carbon benefits, they doubt the success of the program because of the current practice of a non-transparent and non-inclusive benefit-sharing mechanism. In this regard, our research contributes to understanding the importance of the effective participation of IPLCs in producing high-integrity emission reduction objectives. Based on our research findings, we recommend: (1) supporting indigenous knowledge-based experts in awareness and capacity-building programs; (2) investing more in higher education and vocational training programs; (3) putting high priority on social safeguards that promote meaningful participation and active engagement of IPLCs, (4) focus on and empower the functional capacity of IPLCs; and (5) strengthening the vertical and horizontal coordination between cross-sectoral ministries and their departments. As IPLCs have a historical legacy in sustainably managing forests and its resources, emission reduction initiatives should focus on enriching the technical and functional capacities of IPLCs. Ensuring and maintaining multilevel good governance as well as a coordinated approach among donors, governments, and civil society groups, and pledging just and equitable benefit-sharing mechanisms are also deemed important for shaping the successful trajectory of result-based REDD+ programs.

CRedit authorship contribution statement

Kishor Aryal: Writing – original draft, Visualization, Methodology, Formal analysis. **Tek Maraseni:** Writing – review & editing, Visualization, Validation, Supervision, Methodology, Investigation, Conceptualization. **Eak Rana:** Writing – review & editing, Validation, Methodology. **Bhishma Prasad Subedi:** Writing – review & editing, Resources, Data curation. **Hari Krishna Laudari:** Writing – review & editing, Visualization, Validation. **Puspa Lal Ghimire:** Resources, Data curation. **Sudarshan Chandra Khanal:** Validation, Methodology. **Han Zhang:** Writing – review & editing, Supervision. **Ramesh Timilsina:** Resources, Formal analysis.

Declaration of Competing Interest

Authors declare no conflict of interest.

Data Availability

Data will be made available on request.

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