A Study on the Locals' Sustainable Livelihoods from REDD+ (Reducing Emissions from Deforestation and forest Degradation plus) in Cambodia and Myanmar

By

KIM, Ga-Yeong

CAPSTONE PROJECT

Submitted to

KDI School of Public Policy and Management

In Partial Fulfillment of the Requirements

For the Degree of

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Abstract

Would it be possible to find balance between conservation and development? REDD+ (Reducing Emissions from Deforestation and forest Degradation, the role of forest conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries) touches both sides. Here, the development does not mean high technologies and gadgets, rather, it reached out to locals' livelihood improvement based on enough understanding of their needs and contemplating social, economic, and environmental sustainability. In light of this, REDD+ provides locals with awareness, capacities, capabilities, and opportunities to recognize the alternative income sources and responsible production and consumption of the forest resources.

This study examined Korea-Cambodia and Korea-Myanmar REDD+ joint projects which are being implemented from the Korea Forest Service (KFS) by focusing on each human, social, physical, natural, and financial capital to scrutinize influence and link to the locals' sustainable livelihood. Multi-functional REDD+ activities draw a wide range of carbon and non-carbon benefits for locals in a livelihood dimension. The active interaction between the capitals brings more impact. Among them, this study revealed the key role of social capital in terms of forest governance and its long-term impact on the locals' livelihood. The legal framework would be a foothold not only for forest protection, sustainable forest management, and also locals' livelihood improvement. Based on the inclusive institutions and good governance, the density and degree of the social capital will be higher at the community and/or village-based level.

Key words: REDD+, locals' sustainable livelihoods, climate change mitigation, capital, forest governance

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1. Introduction

According to Our Common, a report of the World Commission on Environment and Development said that sustainable development entails more than growth (UN, 1987). Sustainable development should be soundly based upon balanced and reinforcing social, economic, and environmental development in the long-term especially for locals and communities. In connection with sustainable development and REDD+, there would be a potential answer to satisfy human needs and save the earth which are past and still current challenges.

Currently, we live in an era of climate crisis that is an internationally common challenge in developed and developing countries. At the same moment, forests, which are a carbon sink, are steadily reduced and degraded. As the climate change is accelerating, it is drawing substantially different changes and shocks per region at a domestic and international level. It is showing that every day, linking to the biodiversity, tremendous animal and plant species are going extinct and sea level is continuously rising and its range keeps getting wider. At the same time, this is no more for some countries, rather, for all. And, we cannot easily anticipate its frequency and intensity. That is to say, the right, immediate, and decisive action to reduce greenhouse gases is imperative, which is an ultimate aim in a climate action dimension.

The Intergovernmental Panel on Climate Change (IPCC) stated that the greenhouse effect is probable to be at 1.5℃ between 2030 and 2052 if it keeps increasing at the current speed, around 1.2℃ (IPCC, 2018). As anthropogenic greenhouse gas emissions include the forestry

sector, land-use change, land-use intensification and climate change had a negative influence on desertification and land degradation (IPCC, 2019). Since the main drivers of forest loss is deforestation which is to change use of the forest land for agriculture, infrastructure, and habitation, to prevent and stop the forest losses would be a key to keep the forests and safeguard, in particular, protect the locals.

In 2021, the Republic of Korea, which is an energy and industry-based economy, enhanced the Nationally Determined Contribution (NDC) to aim for carbon neutrality by 2030. To do so, among the target per sector, the type of absorption and removals is full of suggestion since the sector, "Overseas Reductions" has been more than double from -16.2 M tCO_2 to -33.5tCO_2 compared with the previous target (NDC, 2021). This enhanced target was updated to -37.5tCO_2 in 2023. Here, REDD+ has taken on a greater importance to accomplish this NDC target.

Forests are a key natural resource as a carbon sink by absorbing the carbon from outside and storing it inside. Although forests are a carbon tank playing a role of mitigation, it also could be emission sources if it is not well protected and managed. As expressed, one of solutions is forests which are the fastest, cheapest, and immediate way as a climate action (UN-REDD Programme). Furthermore, forests are a hot spot of terrestrial biodiversity, watershed, and livelihood for humans and the world. Therefore, to keep and increase the forests will be a global priority by protecting forest natural resources and bettering livelihoods.

Since 2005, REDD+ has been put on a table of negotiation and discussion between nations to deeply and intensively lead international decisions to protect forests and enhance its ability to store carbons. Under the UN Framework Convention on Climate Change (UNFCCC), many parties started and continued negotiation with their intended and voluntary roles and responsibilities to hold greenhouse gas emissions.

By passing from the Kyoto Protocol, in 2015, a new climate mechanism, the Paris Agreement

was founded to tackle climate change from all parties. The agreement emphasized sustainable response and action, so the end line of the agreement was not identified. Among the Paris goals, REDD+ was stipulated in the article 5 which is underlining the importance of an action to conserve sinks and encouraging REDD+ activities especially by incentivizing and increasing non-carbon benefits. In this context, benefit distribution among the locals and communities are one key of the activities and impacts of REDD+. To do so, by touching safeguard, a main player and contributor will be locals and communities who are living in forests as their home ground.

As such, this study aims to ascertain locals' sustainable livelihood improved from REDD+ and includes case analysis of Korea-Cambodia and Korea-Myanmar REDD+ joint projects that the Korea Forest Service (KFS) is currently implementing based on bilateral cooperation for sustainable development and NDC contribution for both sides.

Therefore, this study schemes to analyze direct and indirect impacts of REDD+ to locals and communities' livelihoods by interpreting social, human, natural, physical, and financial capital and suggests which capital and direct or indirect support for that capital connects to the locals' livelihood in the long-term.

2. Literature Review

2.1 Climate Change and Forests

Climate change is interpreted as a shift of climate due to anthropogenic actions that is a driver in changing composition of the planet's atmosphere and as well as natural climate changeability happening over specific comparable time periods (UNFCCC, 1992).

Forests almost cover one-third of global land and a total forest area covering about 4.06 billion hectares is 31 percent of the total land area. Then, the area is almost equal to 0.52 hectares per person even though forests are not provided evenly to the people all over the world (FAO, 2020). The ratio of net forest loss diminished between 1990 and 2020 owing to deforestation decreases and forest areas increases due to natural increase of forests and

afforestation (FAO, 2020).

Forests are connected to the Sustainable Development Goal 15, which is life on land, this targets to protect, restore, and promote sustainable terrestrial ecosystems, sustainable forests, and combat desertification, land degradation, and biodiversity losses (SDG, 2015).

As the table 1 depicts, the top 10 in rankings on average annual net forest losses between 2010 and 2020 all over the world, those top 10 countries include Cambodia which is ranking 8 and Myanmar which is ranking 7 (FAO, 2020).

Ranking	Country	Annual net change	
		1,000ha/year	%
1	Brazil	-1,496	-0.30
2	Democratic Republic of the Congo	-1,101	-0.83
3	Indonesia	-753	-0.78
4	Angola	-555	-0.80
5	United Republic of Tanzania	-421	-0.88
6	Paraguay	-347	-1.93
7	**Myanmar**	**-290**	**-0.96**
8	**Cambodia**	**-252**	**-2.68**
9	Bolivia (Plurinational State of)	-225	-0.43
10	Mozambique	-223	-0.59
Note: The rate of change (%) is calculated as the compound annual change rate.			

Table 1. Top 10 countries for average annual net forest loss (FAO, 2020)

If forests are not sustainably managed, are deforested to the other use of agriculture and livestock or are degraded due to fires and indiscriminate development, it is inevitable to bring the results of forest losses. Thus, although the forests cannot play a role as the carbon sinks, rather, it emits the stored carbons into the air and deteriorates the climate crisis.

2.2 REDD+ (Reducing Emissions from Deforestation and forest Degradation plus)

2.2.1 Background and Definition

Trees that compose forests can absorb carbon dioxide which is a main greenhouse gas through photosynthesis. However, the cut trees cannot absorb the greenhouse gas anymore and if those trees are used as firewood or others, the carbon dioxide which has been stored in the

trees will be emitted into the air.

In developing countries, trees can be used in many ways. Trees can be used for cooking and heating in remote areas where there is no electricity access. In other places, the trees will be utilized as materials to establish infrastructure. If the trees are sustainably planted and harvested, the carbon can be circulating in the air between the trees and keep net zero or find balance as offset. However, if removing the forest areas for absolute change of use to agriculture and roads, the carbon sink function will disappear.

Protection and conservation of the forests in various ways and reduction of greenhouse gas emissions are called REDD+. In addition, REDD+ has been colorfully designed based upon analysis of drivers and agents of deforestation and forest degradation in each country. For example, participatory land use plan could be developed and applicable harvesting technology without cutting trees could be disseminated as the activities. In other ways, eco-tourism could be introduced with job creation and community forests could be formed for sustainable management.

Back in the history of REDD+, in 2005, Costa Rica and Papua New Guinea commenced the discussion on RED which is Reducing Emissions from Deforestation at the Conference of Parties 11 (COP11). The RED has been enlarged to REDD+ by adopting Bali Action in 2007 through COP 13. And, finally in 2015, REDD+ was stipulated in the article 5 of the Paris Agreement with its key function as removals and carbon sinks. Since 2005, REDD+ has been discussed, developed, and implemented to mitigate climate change and role as a tremendous potential to save the earth and people. In conclusion, the concept has been broadened from RED, REDD, and to REDD+ which includes a total five different but integrated activities.

In accordance with the Cancun Agreement and Warsaw REDD+ Framework, REDD+ has a total of five activities. First, (i) reducing emissions from deforestation to decrease forest loss ratio due to change of use from forest areas to agriculture, infrastructure, and habitation. Second,

(ii) reducing emissions from forest degradation to minimize degree of degradation due to anthropogenic loss of carbon stocks in forest land. Third, (iii) role of conservation of forest carbon stocks with any endeavors to conserve forests. Fourth, (iv) sustainable forest management to keep the appropriate rate of consumption according to the rate of natural growth increase to enhance net zero, and lastly, (v) enhancement of forest carbon stocks to change non forest to forest land and improve forest carbon stocks in developing countries.

There are three phases of REDD+ from readiness, implementation, and finally to full implementation which is a possible step to receive Results-Based Payments (RBPs). The initial phase is "Readiness" to prepare the National Strategy or Action Plan including policy framework of forestry, land and forest management, methodology of monitoring and measures, and safeguard. The second phase of "Implementation" is to implement and test the prepared National Strategy and Action Plan. The third phase is "Results-Based Payments (RBPs)" to fully implement the required REDD+ activities at national level (UNEP, 2018).

As the figure 1 depicts positive impact of REDD+ implementation comparing with without REDD+ and with REDD+ with the green shaded additionality which is drawing emission reductions from REDD+ activities, REDD+ results could be brought by rigorous and regular monitoring and evaluation by setting a reference period. REDD+ has potential to store carbons more in light of climate change mitigation and brings carbon and non-carbon benefits for stakeholders in and out of the forest areas.

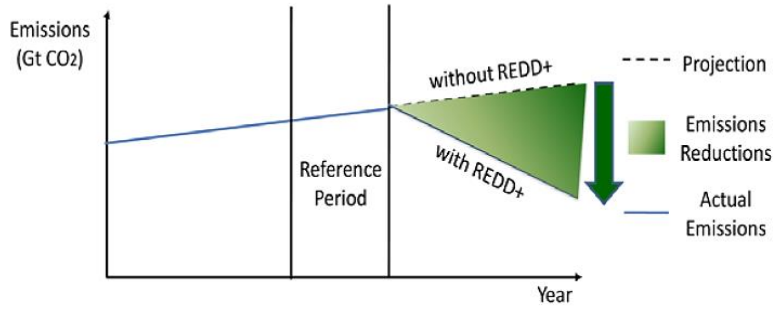

Figure 1. REDD+ and its positive impact (UN-REDD Programme, 2018)

2.2.2 Necessary Elements of REDD+

At COP16 in 2010, parties adopted the Cancun Agreement and it requested parties to observe the imperative four elements to implement REDD+. First is a National Strategy or Action Plan to be prepared at the national level. Since REDD+ implementing countries should demonstrate emission reductions including carbon stocks, the strategy includes multi-dimensional factors and plans such as Measurement, Reporting, and Verification (MRV) system, land use planning and analysis, land tenure plan or reform, forest monitoring and law enforcement, Free, Prior, and Informed Consent (FPIC), safeguard, benefit sharing and other relevant governance, incentives, and schemes.

Since drivers and agents are very diverse but also seen as common as the figure 2 describes, the country contemplates and suggests how to control each factor and obstacle, but at the same time, ethnic groups or endogenous people's rights and culture should be respected in all this procedure.

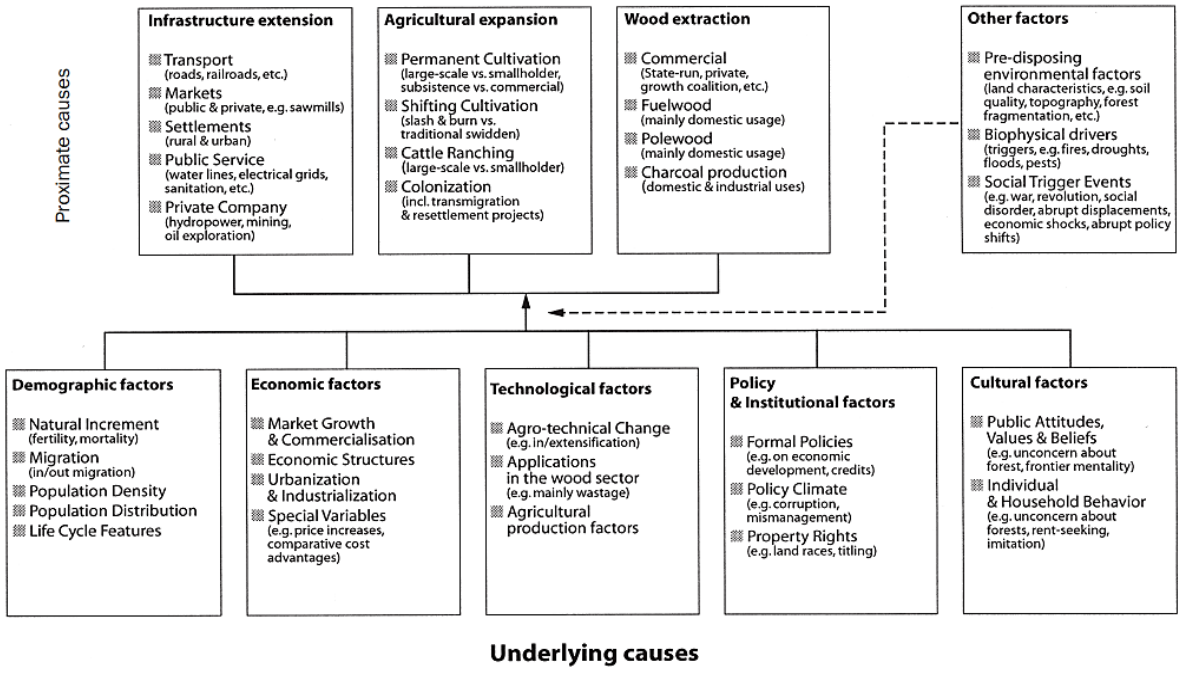

Figure 2. Caused of forest decline (Helmut J. Geist, Eric F. Lambin, 2002)

Second is Forest Reference Emission Level (FREL) to evaluate REDD+ activities

comparing baseline and endline through the activities by determining the historic period which is generally ten or fifteen years. The FREL helps to clarify current degree from past deforestation and forest degradation and GHG emissions/removals. By setting the FREL, the estimated greenhouse gas emissions/removals could be calculated based on the methodology and technical review. The FREL is a key element in order to evaluate the project or program results and this is directly linked to the Results-Based Payments (RPBs) if it is being implemented at the national level.

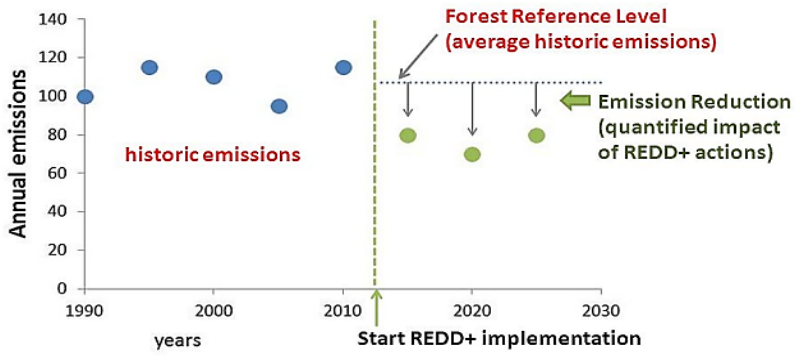

Figure 3. REDD+ performances and Forest Reference Emission Level (FAO)

Third, National Forest Monitoring System (NFMS) which is to ensure statistics of deforestation and forest degradation based on time series by analyzing satellite images to identify the land use change, forest areas and cover change, and change of forest type. The other key of this NFMS is transparency in accordance with more robust and exact Monitoring, Reporting, and Verification (MRV). It means that the NFMS should be opened to the public and its access could be different per country, such as with electronic systems. Since this is linked to the national forest inventory to grasp greenhouse gas emissions and removals through forests, the level and development procedure is quite different according to each country's capacity, and technical condition.

Fourth, the Safeguard Information System (SIS) which is to follow actions or international agreements and conventions relevant to the forest sector. Additionally, the SIS should show

how it respects and includes endogenous people and local communities' knowledge and rights. Since full participation of locals and communities is important, the Free, Prior, and Informed Consent (FPIC) is essential to well disseminate real and informative knowledge to the people. Furthermore, the SIS should accompany natural forest conservation, biodiversity conservation, social and environmental benefit enhancement, and appropriate action to address and control possible emission displacement and risk of reversals.

REDD+ implementing countries are standing at each different point. The ideal way is to reach out to the national level implementation. In reality, many countries are in the preparatory phase which is the readiness.

3. Sustainable Livelihoods Framework

This case study utilized a tool which is called Sustainable Livelihoods Framework in order to analyze locals' livelihood through REDD+. Based on this framework, a total of five different capitals played as each key factor to interpret the link between REDD+ activities and its impact to the locals' livelihood. Direct and indirect support to each capital accumulation has been contemplated together on how to bring a virtuous cycle to the locals' livelihood.

Based on the activities designed by Cambodia and Myanmar, the framework provides how to sketch out key functional factors and strengthen it. At the same time, what direct or indirect support of that powerful capital will give a positive impact to the locals in the long-term.

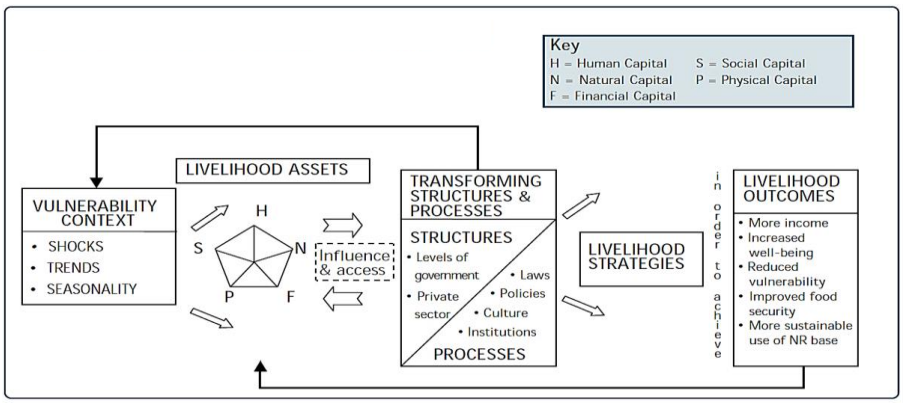

Figure 4. Sustainable Livelihoods Framework (DFID, UK, 1999)

4. Case Study: The KFS's Bilateral REDD+ Joint Projects

The Korea Forest Service (KFS) is implementing REDD+ projects in Asian Mekong region countries, Cambodia since 2015, Myanmar since 2016, and Lao PDR since 2018. This study focuses on Cambodia and Myanmar as the cases since Lao PDR is in the process of the very initial and preparatory step.

Those projects are all being implemented in accordance with the Voluntary Carbon Standard (VCS). The VCS is a widely used voluntary greenhouse gas reduction project and program globally. Once VCS projects have been verified following the VCS's methodology, the project components can issue Verified Carbon Units (VUCs) which can be tradable through the voluntary carbon market by the potential buyers such as enterprises for their offset of their own emissions. (VCS, 2023)

4.1 Korea-Cambodia REDD+ Joint Project (K-CRJP)

Since 2015, the Korea-Cambodia REDD+ Project (K-CRJP) has been commenced by targeting Sandan and Santuk districts, Kampong Thom province which is situated at the central area of Cambodia to the west of the Mekong River. Its Project Accounting Area (PAA) which is possible to reduce carbon emissions is 41,196 hectares (PD VCS Ver. 3, CCB Standards Third Edition, 2018) and implementing entity is Forest Administration (FA), Government of Cambodia.

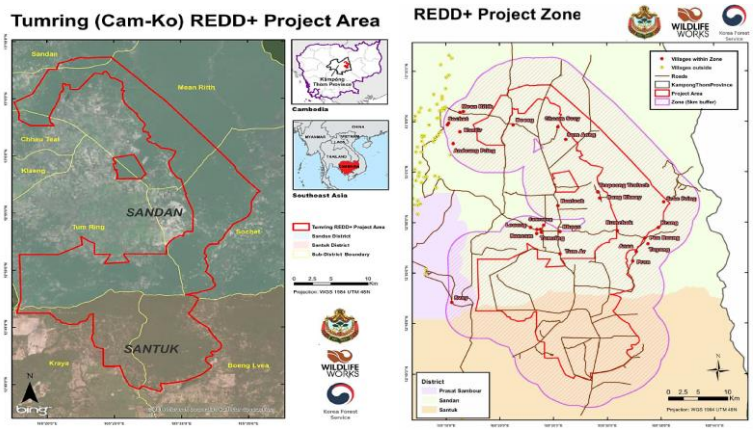

Figure 5. Project area land unit (PD VCS Ver.3, CCB Standard Edition, 2018)

4.1.1. Impacts on Livelihoods: Human Capital

The human capital indicates awareness, expertise (skills), knowledge, capabilities and health that enable achievement of livelihood outcomes (DFID, 2001). The K-CRJP included training and campaigns which are indirect support of the human capital by providing awareness raising linking to high understanding level of the project and relevant capacity building.

Awareness raising

It cannot stress enough the fact that educational opportunities are the great way to build capacities and acquire knowledge and technology. One way of the K-CRJP to raise locals' awareness on forests and REDD+ mechanism, the Project Management Unit (PMU) created signboards which is to place in each different spots within districts and communes in the project site by stressing benefits and strategies of REDD+ to address and minimize deforestation and forest degradation.

Community forests and villages were involved in the awareness raising campaign in 2016. The positive manifestation is to include women's participation in an inclusive way to draw their interest and high understanding. Table 2 describes that total 1,012 participants, among them, 546 participants were women (Quarterly report, 2016). Therefore, 54% of the total trainees were women. Considering the field of forestry, in general, men's involvement is dominant. To attract women's participation could bring other opportunities to make a link to join other economic or social activities by using forest resources with more responsibility and diversity.

No.	Community Forest Name	Village Name	Total Participants	Women Participants
1	O'Krahoung	Cham Svay	98	56 (57%)
2	O'Dascor	Sam Oung	109	56 (51%)
3	Lbos Sral	Ron Knay	29	10 (34%)
4	O'Kranhak	Tbong Teak	112	50 (45%)
5	Tatey	Kanty	75	42 (56%)
6	Kbal Dontey	Beoung	101	52 (52%)
7	Khum Sochet	-	191	124 (65%)

8	Prey Hongchamtit	Trapeng Tra Large	40	14 (35%)
9	Srae Pring	Srae Pring	29	16 (55%)
10	Neak Tala	Srae Laove Srong	61	39 (64%)
11	O'Thmor	Roneam	54	35 (65%)
12	Rumchek	Romcheck	40	18 (45%)
13	Chaom Smach	Tum Ar	35	21 (60%)
14	O'bosleav	Ronteah	38	13 (34%)
		Total	1,012	546 (54%)

Table 2. Awareness raising campaign (Quarterly report, 2016)

4.1.2. Impacts on Livelihoods: Social Capital

The social capital indicates networks, membership and trust (DFID, 2001). Network makes people build trust and capacities to work together and extend their access to institutions. Membership by formalizing groups or teams needs mutual consent or multilateral agreement by understanding and accepting rules, procedures, and sanctions. Relationship links to trust. The trust draws effective cooperation and provides the sources of informal safety or well-being (DFID, 2001).

Activation of Community Forest (CF)

According to the UN-REDD Programme, community forest is defined as a forest that is managed collectively and systemically by locals, in general with timber and non-timber forest product harvest (UN-REDD Programme). To enable them to have their ownership to use and manage forest resources is another value to improve their livelihood and sustainable forest management based on the locals' participatory approach. As a result, Cambodia composed 14 community forestry. The Government of Cambodia issued Sub-Decree No. 79 in 2003 to provide guidance for the establishment, management, and use of community forests (Information Brief, 2023). Since the community forest is state-owned public property, the Cambodian local community can establish the community forest and shall follow some duties that Forest Administration (FA) provides. The community forestry supported by the K-CRJP participated in the regular forest patrol activities. They submitted a monthly report and stored

each in the project filing system. Their participation in the forest patrol contributed to combat deforestation and forest degradation in the project area, Kampong Thom Province.

Province	No.	Community Forestry Name
Kampong Thom Province	1	Prey Hongchamtit Community Forest
	2	O'Kranhak Community Forest
	3	Khum Sochet Community Forest
	4	Tatey Community Forest
	5	Rumchek Community Forest
	6	O'Dascor Community Forest
	7	O'Thmor Community Forest
	8	Chaom Smach Community Forest
	9	Lbos Sral Community Forest
	10	O'Krahoung Community Forest
	11	Srae Pring Community Forest
	12	Kbal Dontey Community Forest
	13	Neak Tala Community Forest
	14	O'bosleav Community Forest

Table 3. Community Forest (PD VCS Ver.3, CCB Standard Edition, 2018)

As a part of the community forest relevant governance, the community forest agreement by involving community members and the community forest management plan by specifying procedures, regulations, and measures on how to sustainably use and manage the community forest is required. In this context, Cambodia steps the logistics including meetings with stakeholders, village dissemination workshops, community forest boundary measurement, public announcement on the draft land title, and issuance of the official community forest land title.

Forest Law Enforcement Unit

Cambodia formalized the forest law enforcement unity and it is closely cooperating with the targeted 14 community forest. The unit provided legal support and assistance for forest law enforcement to capture and measure the forest encroachment and community forest land registration. Not limited to this role, the unit played a role as a moderator to resolve any

conflicts with their legal support. The unit implemented forest law enforcement activities regularly, distributed data collected, monitoring results, and reporting the performances. Furthermore, the unit provided legal assistants to address critical issues relevant to forest criminal cases, even in the court, if needed.

This shows that forest governance acts as a bridge between forest protection and community forest guard. Based on the governance, community forests could be strategically sustaining and continuing their involvement in forest protection and use of forest resources.

Figure 6. Community forest and forest law enforcement team (Quarter report, 2016)

4.1.3. Impacts on Livelihoods: Natural Capital

Biodiversity is much correlated with the status of the forest cover. Protecting forest areas and keeping its status better is a way to conserve biodiversity where valuable plant and animal species are existing.

In the project site, there were three biodiversity surveys from 19 to 25 December 2015 as the first assessment, 13 to 22 August 2016 as the second assessment, and 18 to 23 September 2016 as the third assessment. During the project period, the K-CJRP conserved a total of 91 species and detected that a total 11 among them were identified by the International Union for Conservation of Nature (IUCN) Red List category during the monitoring period (CCB&VCS Verification Report, Ver.3, 2020). Especially, the identified 11 species included Sunda Pangolin which is critically endangered and a top priority to protect. And, lately in 2022, Cambodia had a plan to assess another round of biodiversity survey to clarify other endangered species on the ground. This is not only biodiversity conservation but also local habitat

protection including forest protection.

The IUCN Red List is categorized in a severity sequence, from Not Evaluated (NE), Data Deficient (DD), Least Concern (LC), Near Threatened (NT), Vulnerable (VU), Endangered (EN), Critically Endangered (CR), Extinct in the Wild (EW), and to Extinct (EX). Of them, threatened categories are VU, EN, and CR.

Cambodia protected a total of two birds which are categorized as NT (Asian golden weaver) and VU (Great hornbill). Another species are mammals. There are total two NT (black giant squirrel, Silvery lutung), two VU (fishing cat, Sambar deer, Sun bear), three EN (Indochinese lutung, Owston's palm civet, and Pileated gibbon), and one CE (Sunda pangolin) (Monitoring Report, CCB Version 3, VCS Version 3, 2020).

In the light of the natural capital, forests and biodiversity, its degree and rate of change are both services derived from that capital. Since biodiversity and forest go together, it is directly and indirectly linked to sustainable use of natural resources and this connects to correlation between investment in natural capital and income generation. Although Cambodia has no directly related activities, eco-tourism could be one way to keep and sustainably use the forests. Therefore, this result of biodiversity conservation contributed to locals who are living in the project site, especially in the forests, in a livelihood dimension.

4.1.4. Impacts on Livelihoods: Physical Capital

The physical capital indicates houses (shelters), water, energy, transportation, and information (communications). The core is access and wide distribution to the locals and communities. Cambodia brought some outputs that the K-CRJP provided locals and communities with water and electricity. In terms of incomes and affordable prices, the locals and communities used the energy-based infrastructure with cheaper and reasonable prices, at the same time, providers of the communities earned their incomes.

In this process, Cambodia attracted a private sector to establish the infrastructure and

communities to manage the infrastructure. Better infrastructure is also one component of locals' well-being and this is livelihood improvement from the project impact in terms of physical capital.

Solar Energy-Based Water and Electricity Distribution

During the project period, the Solar System Charging for Home Battery (SSCHB) was constructed to distribute electricity to the locals and communities who are living in remote areas and have no electricity. To facilitate this infrastructure, community forest management committees were trained to acquire rules and guidelines on management not only of infrastructure but also administrative matters such as budget management. Based on the acquired information, the committees operated the SSCHB with appropriate maintenance and management.

In addition, the communities provided awareness raising for community members to use the SSCHB in a sustainable manner. Also, the community forest members received corresponding incentives and had discounted service fees. In particular, in 2021, the SSCCHB provided the service to total 2,782 home-based batteries (Quarterly Report, 2021). This is the activity using renewable energy to enhance the access of the electricity to be distributed to more beneficiaries.

Other access is to water. Based on the pre-survey to explore a site to build solar-based water pumping, all community members found their mutual agreement and continued cooperation for water management, in particular, sustainable use of the water pumped by utilizing solar energy. This service started to be provided in 2021 by providing a total 57 poor families in Sre Pring village, Socheat commune which is the poorest village in the project site (Quarterly Report, 2021). As the SSCHB, the K-CRJP touched on the access improvement of the water resources for the remote areas and households.

Figure 7. Solar energy-based water and electricity (Quarterly Report, 2021)

4.1.5. Impacts on Livelihoods: Financial Capital

The financial capital indicates available stocks and regular budget inflow (DFID, 2001). In other words, there should be seed money and a virtuous cycle of the cash flow. In the case of Cambodia, it ran a micro-finance by investing the initial budget and then drawing circulation.

Micro-finance

The K-CRJP supported two communities (Kbal Dauntey and O Bosleave) based on micro forest conservation finances. The operation governance is that the communities commenced with initial cashes that were put from the project budget. Then, the communities are in charge of management while farmers or other locals are users. The user barrows cash from this system and then all records were written and tracked during the loan period. Since the interest is lower than the backing system, inflow of users is not that difficult. The reason for the farmers' use of this system is to purchase agricultural materials and equipment to increase their farming productivity to bring more incomes. This micro-finance was steadily run for the users' productivities and investment for bettering their livelihoods and cash flows. The notable thing is that the users can have their own capacity to pay back to the system. The other notable fact is that this can contribute to decreasing deforestation since the farmers keep their remaining lands not to enlarge into forest areas due to increased incomes with high productivity. The key is sustainability. To do so, the next additional factor of the trust fund could be backed up.

Trust Fund Operation and Management

In 2020, the K-CRJP brought the initial outcome amounting 650,000 tCO_2 which is GHG

emission reductions from 2015 to 2019 for 5 years during the project period. Both Governments agreed to see the secured Verified Carbon Units (VCUs) to the Voluntary Carbon Market (VCM) to reinvest the sales profits to sustainable project activities on the ground. As a result, almost 2.8 million USD was deposited to the Trust Fund account for reinvestment. 2023 is the first year of the first execution of the Trust Fund.

The Trust Fund had purpose to manage financial resources made from the project implementation as a mechanism to mobilize and manage the fund for sustainable project activities, in particular, for local activities including capacity building for financial management of forestry-based emission reductions, and transparent and effective operation of the fund that both governments made a joint financial contribution.

Although the trust fund is explained as the financial capital, it accompanies a human capital in light of capacity building which is for officials, not locals. Despite it, this has results of benefit sharing. The key is to distribute the benefits to all, inclusively. By operating this trust fund, there are capacity building parts for the Korea and Cambodia side since they have to bilaterally develop Standard Operating Procedure (SOP) which is an official rule setting as a governance. Based on this agreed framework, the fund makes activities going on and on. Since the scale of the fund is bigger than the project budget, the fund provided this project with more opportunities to design local activities and reflect locals and communities' needs.

4.2 Korea-Myanmar REDD+ Joint Project (K-MRJP)

Since 2016, the K-MRJP has been implemented and designed as a grouped project by deploying a baseline to develop the Bago administrative jurisdiction which has much larger scale potential than the K-CRJP.

The first project activity instance is North Zamari Wildlife Sanctuary (NZWS) and its activity instance is approximately 71,969 hectares as the first implementation step. Since the K-MRJP has been pictured as a Jurisdictional and Nested REDD+ (JNR), the project can scale

up the activity instances gradually. With the blueprint of a special aim for covering the entire administrative region, the K-MRJP has different environmental and ecological conditions. That is to cover the reserved forests. Most of all, the biggest difference of the K-MRJP compared with the K-CRJP site, the degree of deforestation is much lower than in Cambodia. The Bago region is divided into Bago East and Bago West which are composed of multiple districts and townships.

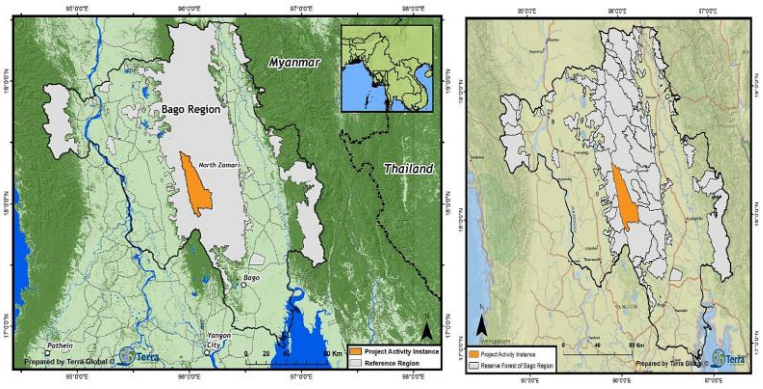

Figure 8. Bago region (CCB & VCS PD, CCB Ver.3.1, VCS Ver.4 2020)

4.2.1. Impacts on Livelihoods: Human Capital

In particular, Myanmar showed a big use and role of the human capital by actively providing local communities with capacity building opportunities based on the PMU's priority that local communities' knowledge and awareness is much more important to fully and successfully implement the REDD+ activities in the field. Especially, Myanmar activated necessary training programs and the concept of the training is directly and indirectly linking to the alternative income generation of the locals.

Basic Forest Management Training for Local Communities

Since REDD+ touches sustainable forest management, Myanmar approached basic awareness and understanding of the locals. The PMU conducted a training focusing on the basic forest management for locals and communities in Bago district and Tharyarwaddy district in 2018 (Quarterly Report, 2018). This training was planned to draw more locals' participation

in order to share and evenly disseminate specific activities of REDD+, concept and impact of sustainable forest management, and the link between climate change and REDD+ including field technology transfer for nursery practices and sustainable use of the forest products.

The training also approached a mix of lectures and practices on site such as nursery spot, forest inventory, and fertilizer production and preparation as a form of field visit and practice. Since the training worked effectively, the knowledge and information of natural forests, sustianble use of forest resources including bamboo and value-added products have been widely shared and exchanged between the trainees. The short-term or long-term potential achievement from the training is to contribute to food security and higher or stable incomes of the locals.

Bamboo Handicraft Training

The K-MRJP focused on bamboo research, at the same time, the PMU connected the bamboo as one of alternative income sources for the locals. Based on this development from the research to the application check, the PMU provided the locals relevant training in particular, on bamboo harvesting, utilization, and management. Following this basic level of the training, in Kyauktaga township and Minhla township with total 20 trainees during 3~17 March 2020 (Quarterly report, 2020), training has been continuously conducted focusing on the next phase, how to produce bamboo handicraft items for sales. Simultaneously, the PMU utilized every training to be one other venue to highlight the key roles of forests, ecosystem services, and change of forest covers in Myanmar. Therefore, the trainees who joined the training could be aware of the importance of REDD+ activating such as forest protection, biodiversity conservation, rural/village development, and climate change mitigation and adaptation through the K-MRJP activities. The PMU encourages the trainees to share and spread their acquired knowledge and information with the other communities.

Similar to the forest management training, this training is also a mix of lecture and practice

by visiting bamboo nursery, planting bamboo at the Forest Research Institute (FRI), going to the bamboo shoot preservation factory in Pyinmana Township, and planting mixed bamboo species in Moeswe Research Station.

In line with this, the KFS invited some field leaders and officials as per the PMU's request in 2019. During the invitational visit, the KFS provided Myanmar REDD+ field leaders workshop. In the process of selecting the trainees, Myanmar screened a total 12 locals and 8 officials by reflecting the training results, in particular, outstanding trainees and their products.

Of REDD+ activities, to suggest alternative income items is crucial for locals. In this process, locals' participation and their leading role is another key to develop and continue the alternative income sources. To do so, the KFS suggested village-based enterprises such as vegetable sales, processed foods production and sales, recreational and therapy experiences.

During the workshop, the locals and officials expressed their interest in mushroom cultivation and sawdust cultivation facilities including operation and costs. They also visited rattan handicraft facilities, recognized that there are similarities between rattan and bamboo, and found that there are many elements they can refer to as a good benchmark in terms of production method and design.

Also, notable is the locals' income increase seminar the KFS provided. During this seminar, the Myanmar official highlighted that there are some challenges to solve such as high-quality production, mechanization introduction, pigment use technology, and patent development in order to more activate the bamboo handicraft of the locals. The bright side is that officials have a deeper concern to activate the bamboo handicraft and it connects to the market formation that locals can participate in. Then this could connect to the other capital such as financial one. At the same line, social capital as governance could be interconnected.

Mushroom Cultivation Training

After the above-mentioned Myanmar REDD+ field leaders workshop, the PMU and locals

reflected mushroom cultivation as one of REDD+ activities, bettering livelihood and providing other income sources. Myanmar provided locals with mushroom cultivation training to offer non-timber forest products, mushroom cultivation techniques, and marketing strategy to link to the market and sales.

During the training, it demonstrated how to cultivate mushrooms on the field and the trainees were divided into several groups to intensively participate in the field practices. The field practice is a key to practical exercise and application by doing learning. While the trainees were trained, the PMU identified that they have enough will to cultivate the mushroom. With that result, the PMU decided to distribute the mushroom species for the local communities.

No.	Participating Village	Trainees	Date
1	19-mile village	20	11~12 January 2020
2	12-mile village	20	22~23 February 2020
3	Hiyu village	20	19~20 July 2020
4	Hiyu village	20	7~10 August 2020
5	Myo Kyaung Ywar Ma village, Kyauktaga township	20	21~22 November 2020
6	Hmaw Yaw Gyi, Yay O Zin village, Kyauktaga township	20	5~6 December 2020
7	Nga Moe Yeik village, Min Hla township	20	9~10 January 2021
8	Za Yit Myaung village	20	24~25 May 2021
9	Shwe Taung village, Kyauktaga township	20	2~3 July 2022

Table 4. Mushroom cultivation training (Quarterly report, 2020~2021)

Figure 9. Mushroom cultivation training and distribution (Quarterly Report, 2022)

Wa-U (Elephant Foot Yam) Cultivation Training

Another training is for Wa-U cultivation in order to increase locals' incomes. During that training, the locals acquired agricultural technologies and application methods on the ground.

For example, they acknowledged a variety of Wa-U, planning techniques, and the potential economic impact of Wa-U. In the light of methods, they got the know-how on the cultivation technologies, market chains, and disease and paste control. In line with this, the training played an important role to provide the alternative income source and persuade their active participation to use the items drawing other incomes.

No.	Participating Village	Trainees	Date
1	Kyauktaga township	20	26~27 December 2020
2	Zaung Tu village	20	2~3 January 2021

Table 5. Wa-U (Elephant Foot Yam) cultivation training (Quarterly report, 2020~2021)

With this, the K-MRJP suggested varied training courses to enhance knowledge based on understanding locals' needs and relevant potentials such as the market. All those training could provide a foothold to develop local capacities and generate their alternative incomes. Also noteworthy, capacities could act as development, in particular human development, and this will be a driver for locals not only to bring incomes with rich economic chances but also strengthen their roles, responsibilities, and ownership as well.

Nursery and Agroforestry Training

There is an overlap between agriculture and forestry. If the locals are pursuing agricultural activities as an economic pillar, then nothing cannot push the other route without making an optimal and reasonable solution. The alternative was a concept of agroforestry which is an integrated approach to harmonize agriculture and forestry. To do so, relevant training has been conducted by building nursery and collecting seeds to enhance incomes and build capacities. The horticultural tree species have been cultivated by the locals through training. At the same time, the training also provided locals with advanced technologies.

No.	Participating Village	Trainees	Date
1	12-mile village	20	15~17 August 2021
2	12-mile village	20	23, 25 August 2020

Table 6. Nursery and agroforestry training (Quarterly report, 2020~2021)

Figure 10. Nursery and agroforestry training (Quarterly Report, 2020)

Locals and communities received mushrooms and horticultural crops to be applied for the agroforestry in 2020 and 2021 (Quarterly Report, 2020~2021). Also, the PMU attracted locals' participation in a tree planting campaign which is afforestation to store more carbons and enhance the storage.

Figure 11. Horticultural tree distribution and campaign (Quarterly Report, 2020-2021)

Basic Household Items Production

One other meaningful training and output was to produce basic household items from the women and minor groups in 2021 and 2022. This also contributed to the cottage industry in one other income source and livelihood improvement dimension. During the training, the trainees were divided into several groups for practical tasks. In this training, a small-scale industry department from the Government of Myanmar was involved to deliver lectures and practices. Through this training, the trainees produced colorfully varied household items such as hand spray, hand wash, shampoos, shower cream, laundry, and various types of soaps, mosquito repellent spray, body scrub, and washing liquid (Quarterly report, 2021). Those are necessary for the locals' lives in particular in the COVID-19 situation. As a result, total 40

villagers were involved in this production and displayed items. Since the COVID-19 was severe in 2020 and 2021, the PMU put more importance on sanitation of the locals.


Figure 12. Training on making basic household products (Quarterly Report, 2021)

4.2.2. Impacts on Livelihoods: Social Capital

Operation and Strengthening Community Forest

As the K-CRJP showed the big role of the community forest, the K-MRJP also had a community forest. The community forest joined weeding and mulching at a demonstration plot (6 acre) located at the 19-mile-village, Kyauktaga township and the other plot (25 acre) in Hiyu village, Min Hla township. Through the training, the PMU delivered the procedures on a community forest management plan which is a key to regularly and sustainably operate the community forest. In addition, the PMU assisted and encouraged fire protection in bamboo community forest and agroforestry plantation spots which were established in 19-mile village, Kyauktaga township and in Hiyu village, Min Hla township.

The K-MRJP approach drew locals' active participation and this was a trigger to reinforce the operation of the community forest. To strengthen community forest, governance is very important. In this context, Myanmar officials guided locals to develop community forest, in particular, by delivering policy and standard operating procedures to well establish and spread more community forest. This is a common and crucial element to set the base of formation of community forest.

Similar to the K-CRJP, the PMU placed a notice board and extension signboard in the community forest after inspection, demonstration, monitoring, and consulting; community

forest encourages sustainable forest management. The other thing of the Myanmar community forest is that the locals more joined forest plantation and preparation of fire road.

Figure 13. Community forestry operation and pest control (Quarterly Report, 2021)

Figure 14. Preparation of fires road on community forestry (Quarterly Report, 2022)

Forest Patrolling

In developing countries, illegal loggings, poaching, and forest encroachments usually happen during the day and at night. For monitoring to control and capture cases in a timely manner, regular forest patrolling is necessary. This patrol makes real time information gathering forest encroachment and wildlife and prevents illegal actions of illegal farmers, loggers, poachers, and miners.

In the NZWS, the K-MRJP regularly conducted meetings with local communities to exchange information of their patrolling activities and capture cases for reporting and finding actions. Those patrolling activities to reduce illegal loggings and poaching in the project areas were implemented by a total of 4 teams, 12 members. The 2 teams are based in Bago West and the other 2 teams are based in Bago East. They conducted patrolling around 20 days in each month and provided results reporting to the Forest Department (FD), Government of Myanmar.

There are three patrolling stations as shown from figure 19. The first station is 41-mile, the

second station 24-mile, and the third station Khar-Chin-Taung (Nga-Pway-Gyi). Each station has 2 teams for patrolling and each team is composed of FD staff and local community members in a balanced way for collaboration and cooperation for effective patrolling. The established outpost played a role to exchange and share each situation among them.

Figure 15. Patrolling in North Zamari Wildlife Sanctuary (Quarterly Report, 2021)

Patrolling Tools

For more efficient and effective patrolling, in 2021, the PMU provided communication tools with the patrolling participants of Let Pa Dan township who are in charge of patrolling at 40-mile base camps of Let Pa Dan township. In the same year, the PMU provided solar devices and ration monthly for tracking the patrolling activities based at 40-mile base camps of Let Pa Dan township (Quarterly report, 2021).

Figure 16. Provided communication tools for patrol (Quarterly Report, 2021)

4.2.3. Impacts on Livelihoods: Natural Capital

As the top 10 in rankings on average annual net forest losses between 2010 and 2020 all over the world include Myanmar which is ranking 7 (FAO, 2020), the K-MRJP also made efforts to afforest and restore forests.

Survival Counting, Growth Measurement, and Fire Protection

In the demonstrated community forestry that was established in the 19-mile village, Kyauktaga Township, the PMU turned operations to survival counting, growth measurement, and fire protection activities. As part of forest protection, to have a right and concrete analysis of forests in a technical way is needed. Fire is one uncontrolled factor such as insect and pest diseases. With this, if early warning is difficult, follow-up management will be more important. In case of fire, it directly impacts not only people but also animals. Also, the social capital also interplayed with this nature capital in light of forest protection and fire controlling.

4.2.4. Impacts on Livelihoods: Physical Capital

Efficient Cookstoves Distribution

Efficient cookstoves were distributed to the local communities to control use of firewood. Although the cookstove's lifespan is different depending on management, it lasts a few years. With the cookstoves distribution occasion, public talks on the benefits of forests were opened.

No.	Village Name	Distribution Cookstoves	Date
1	Two villages	100	9~10 February 2019
2	Hiyu, Hiyu-Ywar-pauk, Aungsanmying (3)	150	19~21 April 2019
3	Shan-su, Sit-pyan-kwin, Pay-yar-kwin (3)	200	24~26 May 2019
4	Ta-ywar-know, Yway-kone (2)	100	29~30 June 2019
5	Kwe-lsn-su, U-do-Anyin-pin, Sar-chaung, Shan0su (4)	200	25~28 December 2019
6	U-do-Ywar-thit, Thet-Kye-Gon, Kan-Kaw-Pin, Phar-Lay-Kwin (4)	400	17~20 January 2020
7	Nga-Moe-Yaek, Za-yit-myaung, U-do-Kanyin Pin, Hiyu (4)		28~29 February 2020
8	8-maile, Nyatae, 12-mile, 19-maile in Kyauktaga Township (4)	400	12~13 July 2020
9	Tayaw Kone, Phayar Kwin, Sit Pyan Kwin, Hlae Pyin Tin village (4)		17~18 July 2020
10	2-maile, Pha-O, 4-mile, 6-mile in Kyauktaga Township (4)		15~16 August 2020
11	Htauk Kyant Kwin, Bant Bwe Pin, Sin-I Chaung Pauk, Kyun Kone village (4)		24~25 August 2020
12	Myo Chaung Ywarma, Kar Lu Kone, Taung	1,000	29~30 May 2021

	Thone Lone, Myo Chaung Zay Tan (4)		
13	Bant Bwe Pin, San Boke, Thetkae Kone, Ywe Kone (4)		22~23 May 2021
14	Zayit Myaung, Nga Moe Yeik, Hiyu, and Bant Bwe Gone (4)		17~18 June 2021
15	Yay Owe Sin, 2-mile, Pha-O, Nyar Tay (4)		21~21 June 2021
16	10-mile village, Kone Myint Thar, Yoma Yaung Chi, 4-mile villages (4)	1,000	2~3 July 2021
17	Zayit Myaung, Nga Moe Yeik, Hiyu, Bant Bway Gone, Myanmar Si Gwa, Phar Lay Gwin, Aung San Myaing (7)		9~11 July 2021
18	Myo Chaung Yarma, Shwe Taung Tan, 12-mile and 19-mile village (4)	920	9~10 July 2022
19	Hiyu, Bant Bwe Kone, Nga Hla San, Zayit Myaung (4)		22~23 July 2022
20	Myanmar Se Gwa, Shan Se Gwa (2)		5 August 2022
21	Kar Luu Kone, Danyin Kone (2)		27 August 2022

Table 7. Distributed efficient cookstoves (Quarterly Report, 2019~2021)

Figure 17. Efficient A1 cookstoves distribution (Quarterly Report, 2020)

4.2.5. Impacts on Livelihoods: Financial Capital

Although the K-MRJP does include a tangible impact relevant to the financial capital, similar with the K-CRJP, a trust fund could be one way to keep continuing activities and enlarging beneficiaries after generating and selling the carbon profits. The difference with the K-CRJP is the scale. The K-MRJP is a Jurisdictional and Nested REDD+ (JNR) project that covers the entire Bago administrative region, in the long-term. Enough, there is a potential for scaling-up.

Although there is no back data to identify current and future potential, Myanmar showed a steady rising tendency in terms of the alternative income generation by the locals. If the communities can organize community-based mushroom and bamboo, there will be a potential

to formalize community or village-based enterprises as the K-CJRP forms community-based resin enterprises. Thus, it can be connected to the market mechanism and virtuous cycle of the income flows.

4.3 Analysis and Findings

REDD+ affects locals' livelihoods in multilateral ways per capital in Cambodia and Myanmar. Basically, and positively, it provides a foothold such as an opportunity to have inclusive and good institutions (governance) that facilitates creation of capabilities and tangible and intangible access and income generation needed from living in a sustainable manner. Table 8 depicts some common and multiple impacts of REDD+ on livelihoods. This manifestation of the locals' livelihood is dependent on each capital enhancement in the long-term to maximize carbon and non-carbon benefits for the locals. In particular, political intervention on forest land registration is important for legal recognition, land tenure security, poverty reduction, and climate change mitigation. This factor (social capital) is a step towards promoting sustainable forest management, protecting forest resources, and bettering local livelihoods.

Capitals	Country	Evaluation and Lessons Learned
Human Capital	Cambodia	- Awareness raising on REDD+ concept through campaign ⇒ Confirm free, prior, and informed consent (FPIC) - Knowledge dissemination of agricultural technology ⇒ Provide not only fertilizer but also applicable technology - Understanding awareness of local traders on agricultural commodities trade and its link to deforestation ⇒ Clarify necessity of more locals' awareness raising to be accompanies in particular forest law and forest land clearing, and its link to the impacts on the environment - Inclusive participation (women) and locals in the remote area ⇒ Encourage women's involvement and enlarge beneficiary scale

	Myanmar	- Awareness raising on REDD+ concept through trainings ⇒ Confirm free, prior, and informed consent (FPIC) - Training on sustainable forest management ⇒ Provide income sources to the locals and ensure responsible production and consumption - Consideration on the value chain of the market ⇒ Provide effective use by coping with other types of knowledge (how to market goods) - Production of the basic household items and Inclusive participation (women) ⇒ Encourage women's role and involvement
Social Capital	Cambodia	- Security of the forest land tenure (boundary measurement, public announcement, the community forest land registration, issuance of the official community forest land title) ⇒ Enhance forest governance - Formation of community-based resin enterprises ⇒ Generate incomes and encourage sustainable production
	Myanmar	- Operation of community forest ⇒ Develop community forest management plan to well organize - Involvement of forest patrol activities ⇒ Cooperate with government and local community members ⇒ Build patrol ability and reporting skills
Natural Capital	Cambodia	- Protection of forests and conservation of biodiversity categorized on the IUCN red list ⇒ Keep forests and biodiversity as the national natural resources
	Myanmar	- Protection of forests in the North Zamari Wildlife Sanctuary ⇒ Keep forests and conserve the biome as it is - Demonstration of the agro-forestry concept ⇒ Find balance between agriculture and forestry
Physical Capital	Cambodia	- Establishment of the solar system charging for home battery ⇒ Provide electricity access to the locals living in the remote areas - Establishment of solar-based water pumping ⇒ Provide water resources to the locals living in the remote areas
	Myanmar	- Distribution of energy efficient cookstoves ⇒ Reduce fuel woods and forest degradation ⇒ Alleviate a respiratory disease

Financial Capital	Cambodia	- Operation of the Micro-finance for farmers and stakeholders ⇒ Contribute to income generation/increase and capacity to return - Creation of the Trust Fund (TF) and the virtuous cycle ⇒ Reinvest the TF for sustainable activities on the ground and build capacity of the TF management and operation
	Myanmar	- No financial services or organizations - Formation of the market of handicraft items made by women ⇒ Activate economic activities brining incomes increase

Table 8. Evaluation and lessons learned (Author's construct, 2023)

Another finding is a role and potential of governance considering the project impact in diverse spheres. As REDD+ spans ecological, social, political, administrative and legal boundaries (Shannon 2003) which is a holistic approach to address deforestation and forest deforestation.

Cambodia constructed the legal structure to secure the community forest's land right (ownership). This legal coordination includes participation of the government and commune chief. There are key actors and their roles as the table 9 shows. Cambodia addressed coordination, institutional arrangements and multi-stakeholders' participantion.

No.	Key Actor	Role
1	The Forestry Administration	The land owner who requested for the community forest land registration
2	The Commune Chief	The facilitator and verifier of relevant documents
3	The District Government	The facilitator and verifier of relevant documents
4	The Department of Land Management	Technical institution who issued the community forest land title

Table 9. Key actors and their roles (Information Brief, 2023)

Based on this governance, Cambodia steadily registered community forestry and its land title to be issued and announced. By securing the land tenure, the communities keep using the forest resources and, in this procedure, the government provided some livelihood relevant activities such as free deforestation agricultural commodity production and trade, value chains of the community-based resin enterprises, community-based forest conservation micro finance,

sustainable agricultural practices improving agricultural land and increasing farm productivity, and solar energy as an alternative fuel source. Cambodia formed not only community forests but also agricultural cooperatives. The mission of Cambodia is to enlarge the community forest members and agricultural cooperatives as the beneficiaries who are a key to keep the forests and their livelihoods.

Myanmar's intervention is another focus while Cambodia focused on the land tenure security. Cambodia and Myanmar, both have the community forest management plan, and Cambodia regularly hold the community forest committee and provide capacity building programs on how to operate and manage, including budgetary tasks. Also, Myanmar provided essential information for community forest establishment, its policy, SOP, and instructions to the locals. In addition, Myanmar focused on the coordination and cooperation with the community forest members to field demonstrations including pest control, weeding, infrastructure (fire road and fire protection). Myanmar brought locals' involvement in forest plantation on that demonstration in the field. With this, Myanmar's governance to form and utilize the community forest is more working on the environment sector, in particular forest protection. Myanmar has another separate concentration on livelihood improvement programs by focusing on minority and women groups. Myanmar provided the training program, at the same time, they provided outstanding trainees with incentives such as an invitational training program to Korea to explore other potential non-timber forest product items. This is also interesting since they screen and choose the trainees with more locals and a few officials from the Government side.

The common challenge is still lack of stakeholders' knowledge on REDD+, but this could be solved to sustain the activities and steadily enlarge budget and scale (project areas) with governance enhancement and good governance formation. In this context, (i) more effective coordination between multi actors and stakeholders, (ii) forest law enforcement, (iii) information sharing and land tenure security, (iv) awareness raising, and (iv) inclusive

consensus on sustainable forest management and land use plan on the ground, Thus, all these shows that each capital should interplay actively.

5. Discussion

Analyzing the interaction between the capitals, both countries indicate that there are main drivers and agents of deforestation and forest degradation in common. That is agriculture. However, at the same time, agriculture is a main income source of the locals. Considering the REDD+ project characteristics, this study found that social capital could be a key and fundamental solution. In the case of the K-CRJP, the biggest outcome is establishment of a foothold for forest land registration of the community forest. That is forest governance. When the forest land registration is completed, it brings knock-on effects. The basis is the government's intervention and assistance in the formation of community forestry. The process is inclusive since it is required to have meetings with stakeholders and village dissemination workshops, do community forest boundary measurement, release public announcement of the draft land title, and issue the official community forest land title. Here, it shows social capital, in particular, membership of more formalized groups, community forest could be well organized based on the "good governance" which is also an indirect support that is transforming structures and processes of the social capital. Then, the knock-on effects are to provide legal recognition and land protection, help communities secure their land tenure, ensure their rights to use and manage forest resources for their multiple benefits, promote sustainable forest management, reduce degradation issues, and of course, alleviate poverty among local communities by providing them with the income sources through the sustainable forest management in the long-term, and finally contribute to the climate change mitigation locally and globally. Both countries focused on operation of the community forest as the social capital and this mostly included enhancement of governance with accompanied roles, regulations, and management. In the case of human capital, usually, awareness raising and

relevant campaigns or training were provided to the locals. On the other hand, the K-MRJP site has already been designated as a reserved forest. It means that the forest land is under the management of the Government of Myanmar, Forest Department. Although each country has different feature areas as the project site, Cambodia and Myanmar operated community forest and monitored its management. From the built connectedness and ownership, the communities can keep their designated forest land and simultaneously can use the forest resources for sustaining their livelihoods. In line with this, if the project beneficiaries are formed as each region community forest, it can contribute to sustainable forest management and locals' livelihood improvement in the long-term.

In general, both countries approached and used the human capital for awareness raising and balanced participation including women, natural capital for forest by balancing protection and responsible consumption, and physical capital for providing locals with electricity and water access improvement. In the case of financial capital, those pilot REDD+ projects have been designed to create, operate, and manage the Trust Fund for the project sustainability.

6. Conclusion

This study examined that REDD+ interplays among the capitals contributing to the locals' livelihoods. Especially, in the light of locals' sustainable livelihoods, the social capital plays a crucial role and one of them is community forest. However, one of the drivers of deforestation is "population" and "their migration and forest encroachment". Then, even though there is land use planning and government policy such as provision of one (1) ha per household for their agricultural activities, it cannot afford sufficiency. If so, social capital's role will be growing. In other words, community forest governance should be constructed to better locals' livelihood and pursue decentralized natural resource management. Thus, there might be insufficient forest resources and inadequate empowerment of marginalized communities for sustainable forest management. The challenge is moving and developing from the practicing status to maturing

status in an inclusive way.

6.1. Policy Recommendation

Cambodia and Myanmar could refer to the framework for assessing and monitoring forest governance (FAO, 2011). It would be possible to firstly understand forest governance and modify it through identification of weakness and reflection of the monitoring results. The framework has three (3) pillars and six (6) principles of the governance as the figure 18 depicts.

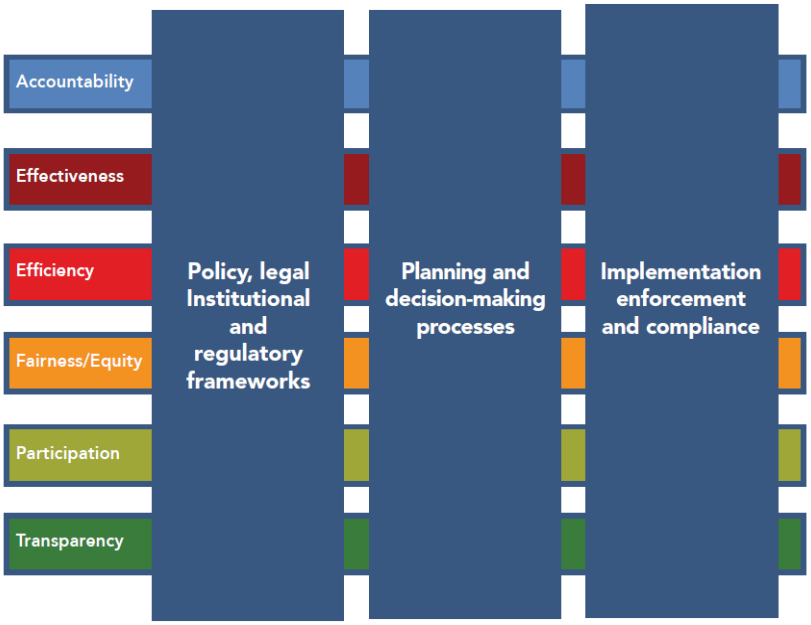

Figure 18. Pillars and principles of governance (FAO, 2011)

Even though the government interventions for good governance, private sector, NGOs and cooperation with provincial governments can be inclusively involved in this governance. To do so, in the case of Cambodia, they can review the meetings with stakeholders (scope and role) and village dissemination workshops (villagers and their interaction) which are one of the processes of the community forest land registration.

In particular, the governance connotes institution, decision-making, and enforcement, the locals' access to the forest resources, locals' capacity and action, and cooperation would be contemplated more systemically through this Framework. Thus, the Pillar 2 components would be enlarged by focusing what the locals and community forest members depend on and find

the alternative way to better their lives not only income generation but also wider lens including education, health, and finally well-prepared capacities, leadership, and management skills which form another good governance and their better livelihoods in the long-term.

Pillar 1: Policy, Legal, Institutional and Regulatory Frameworks
1.1 Forest related policies and laws
1.2 Legal framework to support and project land tenure, ownership and use rights
1.3 Concordance of broader development policies with forest policies
1.4 Institutional frameworks
1.5 Financial incentives, economic instruments and benefit sharing
Pillar 2: Planning and Decision-Making Processes
2.1 Stakeholder participation
2.2 Transparency and accountability
2.3 Stakeholder capacity and action
Pillar 3: Implementation, Enforcement, and Compliance
3.1 Administration of forest resources
3.2 Forest law enforcement
3.3 Administration of land tenure and property rights
3.4 Cooperation and coordination
3.5 Measures to address corruption

Table 10. Basic subcomponents of the Framework (FAO, 2011)

In this integrated and holistic mechanism, REDD+, we need to embrace more locals, communities, minority groups, and any other colorful ethnics in this journey. The direct support to asset (social capital) accumulation, the community forest should be formalized in an active and inclusive manner and indirect support (through transforming structures and processes) should be back up, and this will be a “good governance”. Based on the inclusive institutions, the density of the social capital at the community level will be higher.

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