# 博士論文（要約）

# Effects of REDD+ Initiative on the Vulnerability of Local Communities to Climate Change: Implications to Forest Governance in the Philippines

（気候変動に対する地域社会の脆弱性への REDD プラス政策の影響：
フィリピンの森林ガバナンスへの含意）

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*Chapter One*

# *I. Introduction*

## 1.1 Overview

The Fifth Assessment Report of the Intergovernmental Panel on Climate Change (FAR-IPCC) reiterated the undeniable warming of the climate system mainly caused by anthropogenic factors (IPCC 2014). Between 1880-2012, the global averaged combined land and ocean surface temperature warming is at 0.85°C (IPCC 2014, p). The observed changes in climate discerned the sensitivity of the human and natural systems in terms of its associated impacts.

The Philippines is highly vulnerable to the impacts of climate change and natural hazards (Philippines INDC 2015). Its vulnerability is disclosed in terms of impacts from climate-related extremes like drought, floods, cyclones and El Nino while further exposing majority of its ecosystems and population to climate variability. The recently published 2015 Global Climate Risk Index of Germanwatch ranked the Philippines fifth in terms of the long-term Climate Risk Index (CRI) in the past ten years (1994 to 2014). The country has also scored the highest Climate Risk Index for 2013, primarily because of Typhoon Haiyan (local name Typhoon Yolanda), the strongest tropical cyclone, which hit the country in 2013. The reported economic losses of the event amounted to US$13B, with 6,000 recorded deaths (Kreft et al. 2015).

The Philippine uplands with a total forest cover of 8.040 M ha (26% of 30M ha land area) are particularly vulnerable to climate change (FAO 2015; Lasco et al. 2011). Logging (legal, illegal and poaching), kaingin making (swidden), biophysical factors (climate change, typhoons, floods, landslides) and mining are the culprits to deforestation and degradation, (Carandang et al. 2013; DENR 2013). It houses at least 25% of 100 M Filipinos whose main income to some extent is dependent on forest land resources (Lasco et al 2010; Carandang 2012). Upland communities' vulnerability to climate-related extremes is worsened by catastrophic hazards like flooding, landslides, soil erosion and forest fires inflicting devastating impacts, such as loss of life, injury, and damage to property, infrastructure, and livelihoods (PAGASA 2011; IPCC 2014; Peras et al. 2008).

The Philippines accepted the challenge posed by climate change in its pursuit to economic development. Hence, institutional reforms are continuously pursued towards climate change mitigation and adaptation and has put in place a comprehensive climate change policy agenda which includes among others the passage of Climate Change Act in 2009, adoption of the National Framework Strategy for Climate Change (NFSCC) in 2010, issuance of the National Climate Change Action Plan (NCCAP) in 2011 (Philippines INDC 2015).

The CBFM program comprises around 1.6 M household-beneficiaries belonging to 1,888 CBFM Agreements (CBFMA) covering 1.6 M has of tenured forest land (DENR 2013). CBFM areas generally located in both upland and coastal areas are particularly vulnerable to climate change (Grefalda 2014; Tapia et al 2014). This is primarily due to the landscape's fragility, high dependence on farming, limited adaptive capacity and unsustainable resources use (Tapia et al 2014; Pandey and Jha 2012). Hence, CBFM has a crucial role to play in climate change adaptation (Tapia et al 2014) and mitigation (PNRPS Team 2010; Lasco et al 2010). Therefore, assessing CBFMs vulnerability to climate change is an important step toward realizing sustainable forest management.

However CFBM implementation is generally faced with many challenges. Although CBFM-People Organizations (POs) are regarded as partners to development and advocates of climate change adaptation and mitigation strategies, the 'bundles of responsibilities' attached to CBFM implementation (Pulhin et al 2008) do not directly translate into improving livelihoods or capital assets (human, natural, financial, physical and social). Worse, the vulnerability of marginalized groups in rural areas is exacerbated by CBFM through the structural inequalities in access to land and forest resources (Chomba et al. 2015; Pulhin et al. 2015; Tarun-Acay 2005). Hence, the multi-dimensional characteristics of CBFM implementation contribute to the vulnerability of already vulnerable households.

REDD+ is another promising initiative in CBFM areas recognized to deliver co-benefits more than the financial gains. Could the (promised) benefits from REDD+ implementation be able to reduce the vulnerability of CBFM to climate change impacts? Though it would be premature to attribute the vulnerability of CBFM households to REDD+ at its pilot demonstration - readiness phase, the common knowledge about REDD+ and insights from CBFM members could somehow illustrate their interconnectedness. More recent vulnerability studies used the five elements/components of the sustainable livelihoods framework in assessing the degree of vulnerability of households and communities (Hahn et al. 2013; Shah et al. 2014). This study would like to unveil the contribution of

CBFM initiatives including REDD+ readiness projects to addressing the vulnerability of households to climate-related events such as drought, El Nino and typhoons. Likewise, the current governance system in the country will have important implications on the implementation of projects/programs in CBFM areas (Pulhin et al. 2015).

### 1.2 Significance of the study

The research is a pioneering study that will explore the integration of three (3) important bodies of knowledge that have gained recently in the literature: vulnerability to climate change, REDD+ initiative, and forest governance. The study aimed to provide an understanding on the current impacts of CBFM initiatives on the livelihood capital assets of the local communities particularly among the members of the CBFM POs and how REDD+ could further enhance their livelihood assets. Moreover, REDD+ impacts will be analyzed in terms of achievement of sustainable livelihood, co-benefits and tradeoffs; and adherence to Social and Environmental Safeguards (SES) particularly on participation principle. In addition, the study hopes to address the gap in the literature in terms of investigating the contribution of CBFM initiatives, including REDD+ readiness projects, to addressing the vulnerability of households to climate-related events, such as drought, El Nino and typhoons. The study also intends to understand the implications of REDD+ implementation to the country's forest governance. Recommendations that will be drawn by the study will be vital for policy makers, planners and REDD+ implementers from the local, provincial, regional and national level. The study will have important implications on the overall implementation of CBFM in the country as it addresses sustainable livelihoods concerns vital to its sustainable forest management goals.

### 1.3 Objectives

The over-all objective of the study is to determine the extent to which REDD+ initiative addresses the vulnerability of the forest dependent communities to the impacts of climate variability and extremes in the Southern Leyte REDD+ pilot demonstration area and its implications for forest governance in the Philippines.

Specifically, the study aims to:

1. Examine the livelihood impact of CBFM;

2. Assess the impacts, vulnerability and adaptation strategies of local communities to climate-related extreme events;

3. Analyze REDD+ effects on addressing sustainable livelihood, co-benefits and trade-offs, and adherence to social and environmental safeguards (SES);

4. Analyse the implications of REDD+ implementation in the study area to the country's forest governance.

## Chapter Two

## The Theoretical Framework

### *2.1 The Community-Based Forest Management (CBFM) Program*

The Community-Based Forest Management (CBFM) emanates from participatory approach to forest management where local communities represented by formal[1] people organizations are granted tenurial arrangements in the forestland provided they take the responsibility towards conservation, protection and sustainable management of the forest resources. CBFM is also seen as the Philippine government's important program to address the twin problems of upland poverty and forest degradation. For three (3) decades of CBFM implementation (1995-2015), considerable impacts both positively and negatively are already evident in most sites. Hence, earlier assessment conducted by a collaborative team from ADMU-IPC and UPLB-CFNR used sustainability and asset building framework in assessing the preliminary impacts of the program (Guiang et al. 2001).

At present, CBFM has evolved in terms of the attach objectives it is trying to attain such as biodiversity conservation, poverty reduction, sustainable forest management and climate change. Physical accomplishments of the program was considered very low at 600,000 ha after 10 years of CBFM implementation (1995-2005) (Chokkalingam et al. 2006). The most recent assessment of CBFM measured the impacts of tenure reform on the lives of CBFM communities using LIFE (livelihoods, income, forest condition and equity) indicators (Pulhin et al. 2008). The use of the sustainable livelihoods framework in assessing the impacts of CBFM or any CF program/ intervention is not new. Hence, this study used this framework to assess the impacts of CBFM and eventually REDD+. REDD+ is a new layer of intervention envisioned to be placed in CBFM areas as REDD+ negotiations progresses.

The study uses the Sustainable Livelihoods Framework as an overarching framework that looks at the contribution of both CBFM and REDD+ (readiness) initiative in achieving sustainable livelihoods in

[1] *Formal people organizations refers to organized groups of people formally recognized by the Securities and Exchange Commission (SEC).*

the face of a changing climate and forest governance system (Figure 1). Each of these concepts are further elaborated and discussed below.

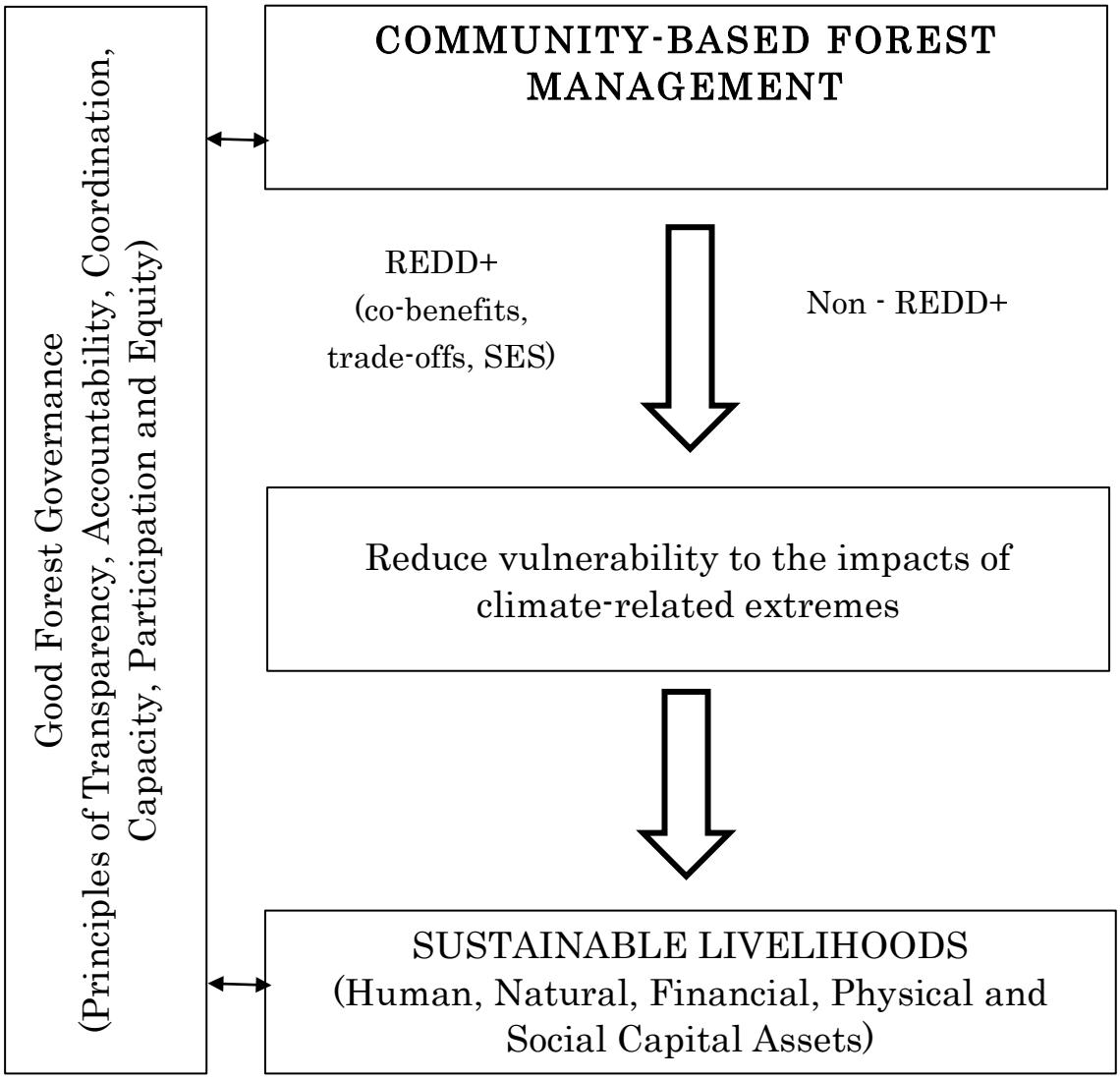


Figure 1. Simplified conceptual framework showing CBFMs goal towards ultimately achieving sustainable livelihoods with and without REDD+ initiatives in the face of changing climate and forest governance system.

*2.2 The Sustainable Livelihood Approach (SLA)*

The use of the Sustainable Livelihoods Framework (SLF) is used in assessing the general contribution of CBFM and REDD+ (Readiness) initiative to local community especially to member households was adopted in this research. The Sustainable Livelihoods Framework (SLF) is used to analyze the "livelihoods of the poor" (Chambers and Conway 1991; Hahn et al 2009; Shah et al. 2013; Small 2007). In 1981, Amartrya Sen popularized SLF through the concept of entitlements or capabilities (cf. Chambers and Conway 1991), which states that access to assets gives people the opportunity to act freely in the face of adversities. Chambers and Conway (1991) improve the use of the sustainable livelihoods context in terms of the ability to cope with and recover from stress, while continuing to provide for future generations.

Other scholars define sustainable livelihoods as "an approach to enhance resource productivity, secure ownership of and access to assets, resources and income earning activities as well as to ensure adequate stocks and flows of food and cash to meet basic needs" (Singh and Gilman 1999). It is also perceived as an approach to development highlighting the evolution of development thinking by emphasizing assets of people and the role of institutions and policies in facilitating underdevelopment (Mazibuko 2013) by combining SLA with the concept of poverty traps (Mikulcak et al 2015).SLA is also seen as a tool to improve understanding of the livelihoods of the poor by using people's assets (natural, physical, human, financial and social) as the major complementary building blocks for their livelihoods (Erenstein et al 2010; Bhandari 2013; Carney undated).

Furthermore, SLA is important for a number of ways according to Bhandari (2013), such as recognition of capabilities, assets and activities required for a means of living; understanding the linkage between household assets and the activities engaged in based on the available assets; and analysis of factors affecting vulnerability of adaptation strategies used. The concept of SL have been adjusted with contributions more prominent in areas that clarified poverty reduction emphasis, close link of environmental sustainability and poverty reduction, focus on rights and poverty issues, increases user's analysis intricacy, and understanding economic and market issues (Carney undated).

However in the desire to further enhance understanding of the concept, scholars offered some critiques or lapses that the approach failed to capture. Mazibuko (2013) cited the failure of SLA to capture the impacts of external factor such as global economic recessions and globalization on people and

the environment. Small (2007) also criticizes SLA for failure to account the role of well-off players as the tool is more focused on the plight of the poor, absence of social structure and power relations concepts (market, class, gender and ethnicity), ahistoric for focusing on the current situation and missing information on issues of citizen rights, environment and poverty. But Singh and Gilman (1999) acknowledges the problem of food security mainly associated with the multi-dimensional issues of poverty. Poverty is generally an outcome of people's livelihoods, where livelihood assets can be a proxy for absolute poverty and broader poverty measure (Erensten et al 2010) which is further confirmed with the use of SLA in generating multi-dimensional poverty maps/contrasts.

SLA can be a tool to analyze the impacts of development initiatives. A number of assessments in CBFM used the SLF or asset-based approach in determining the overall impacts to local communities' livelihood capital assets (Lambini & Nguyen 2014, Chen et al. 2013, Ali et al. 2007). It was also used to understand the implications of livelihoods approaches by tracking how a certain program/ development initiative impact on people's livelihoods (Carney undated). Meanwhile, Nath and Inoue (2010) saw the importance in using SLF in the conservation and development of forests in Participatory Forestry (PF) projects where the assurance of food and income for the family is associated with PF conservation, hence, long term integrated sustainable resources management plan has been suggested for PF in Bangladesh. Even in synthesizing the payments for ecosystem service (PES) schemes in a number of case studies, Sango et al. (2013) used the SLF as the overall indicator of the impacts derived from the PES initiative.

This study considered the SLF in analyzing the overall impacts of CBFM and future REDD+ on the local stakeholder's livelihood capital assets. The framework provides an overall picture on the livelihoods of the local community especially the poor and vulnerable, which can be affected, either positively or negatively, by any development initiative. By definition "a livelihood comprises the capabilities, assets and activities required for a means of living". Livelihood sustainability depends on its capacity to cope and recover from stress and maintain or enhance its capabilities and assets in the future (DFID 2001:2). CBFM is both a conservation and development initiative aimed to generate greater impacts on the natural, human, financial, physical and social capital assets of the local communities. These capital assets are briefly described as follows:

- Human capital represents the "skills, knowledge, ability to labor and good health that together enable people to pursue different livelihood strategies and achieve their livelihood objectives" (DFID 2001:19). Human capital accumulation is a key factor in achieving livelihood outcomes

especially if local communities are willing to learn and enhance their current understanding by attending trainings/ seminars or schools and/or accessing medical facilities. The numerous trainings and seminars provided by DENR and other NGOs in CBFM areas are indicative of the accumulation of human capital assets. Its success will depend on whether such trainings/seminars have been applied to further enhance the condition of the household.

- Social capital refers to the "social resources upon which people draw in pursuit of their livelihood objectives" (DFID 2001:21). These are developed through networks and connectedness, membership of more formalized groups; and relationships of trust, reciprocity and exchanges that facilitate cooperation, reduce transaction costs and may provide the basis for informal safety nets amongst the poor (DFID 2001). In CBFM areas, the formation of POs that adheres to common interests served as social networks that facilitate innovation, knowledge development and sharing. Adherence to common interests also mean compliance to forest management administered by the organization and participation to community affairs.

- Natural capital refers to the "natural resource stocks from which resource flows and services (e.g. nutrient cycling, erosion protection) useful for livelihoods are derived" (DFID 2001:23). Natural capital assets cover both tangible and intangible resources. Its importance lies on the derivation of livelihoods from resource-based activities such as farming, fishing, collection of various forests and non-timber forest products (NTFPs). Hence, the sustainability of this asset would be critical in realizing other capital assets. Also, access and control over these resources are important indicators that may constrain or facilitate the flow of services in CBFM areas.

- Physical capital pertains to "basic infrastructure and producer goods needed to support livelihoods" (DFID 2001:25). Infrastructure includes the transport system, shelter and buildings, adequate water supply and sanitation, clean, affordable energy, and access to modes of communications. Absence and/or inadequacy of infrastructure is considered a core dimension of poverty. This means that poor infrastructure can hinder access to education, health services and income generation (DFID 2001).

- Financial capital refers to the "financial resources that people use to achieve their livelihood objectives" (DFID 2001:27). The two main sources of financial capital include available stocks (savings either cash, bank deposits or liquid assets such as livestock and jewelry); and regular

inflows of money (pensions or other transfers from the state and remittances). The marginalized poor normally lack this capital asset; hence, accumulation of this capital would be used to achieve livelihood goals.

### *2.3 The REDD+ mechanism*

Reducing Emissions from Deforestation and Forest Degradation in developing countries (REDD) is an international mechanism framed through the international climate change negotiation that provides financial incentives for developing countries to reduce deforestation and forest degradation and protect their forests. This mechanism is a new framework intended to financially compensate countries willing to cut GHG emissions (Parker et al, 2009).

#### 2.3.1. The REDD+ Beginnings

In 2007, the Conference of Parties (COP) to the United Nations Framework for Climate Change Convention (UNFCCC) adopted 1/CP. 13: Bali Action Plan and decision 2/CP.13: Reducing emissions from deforestation in developing countries: approaches to stimulate action:

> *The Conference of the Parties…decides to launch a comprehensive process to enable the full, effective and sustained implementation of the Convention through long-term cooperative action, now, up to and beyond 2012 …. by addressing, inter alia: Policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries.*

At its sixteenth session, the UNFCCC COP adopted a decision in Cancun, Mexico in December 2010, encouraging developing country Parties to contribute to greenhouse gas (GHG) mitigation actions in the forest sector by undertaking REDD+ activities, which includes *reducing emissions from deforestation and forest degradation, conservation of forest carbon stocks, sustainable management of forests and enhancement of forest carbon stocks, as well as the principles and safeguards for REDD+*. The implementation of REDD+ activities will take place in three different phases, starting with (i) the development of national strategies or action plans, policies and measures, and capacity-building, (ii) implementation of REDD+ national / country-specific strategies or action plans including technology development and transfer and results-based demonstration activities and evolving into (iii) results based

actions that should be fully measured, reported and verified (see Box 1). Financing options for the implementation of results-based REDD+ actions will be explored and progress reported to UNFCCC COP 17 in 2011.

The Forest Carbon Partnership Facility (FCPF) and the UN REDD Programme are currently implementing REDD+ pilot and demonstration activities that integrate efforts to include ecological and socio-economic aspects. FCPF objective test ways to sustain or enhance local communities' livelihoods as well as conserve biodiversity. The selection criteria focuses on "innovative and/or advanced concepts of monitoring, reporting and remote sensing, including forest degradation, biodiversity protection and social benefits." Priority is given to countries with, "high relevance of forests in the economy of a country including relevance for poverty reduction, the livelihoods of forest-dependent indigenous peoples and other forest dwellers." Representatives of forest-dependent indigenous people and forest dwellers can observe meetings of the FCPF participants committee (UNEP/GIZ, 2011).

**Box 1. REDD+ Phased Approach**

**Phase 1: Readiness**

Development of a national REDD+ strategy, including:

- formation and operation of REDD+ "working groups";
- identification and prioritization of key policy and institutional capacity building measures (for both state and non-state actors);
- national cross-sectoral dialogue and stakeholder consultations to plan policies and measures (PAMs);
- procedures for free, prior, and informed consent (FPIC) of indigenous peoples;
- preparation of proposals (e.g., FCPF readiness plan proposal) to access fast-start financing;
- updating national forest inventory;
- forest carbon stock research;
- identification of required protocols and planning for demonstration activities;
- initial capacity building and demonstration activities; and
- design of monitoring, reporting, and verification (MRV) schemes to pave the way for investments in Phase 2.

**Phase 2: Transformational Changes**

Implementation of PAMs proposed in the national REDD+ strategies including:

- agreement on reference levels;
- improvements in MRV schemes;

- improvements in participation of indigenous peoples and local communities;
- scaled-up capacity building and demonstration activities; and
- performance-based payments on the basis of proxy indicators:
  (a) institutional strengthening, forest governance, and information;
  (b) activities in the forest sector such as land tenure reforms, forest management and restoration of degraded forest landscapes, community-based fire management, assisted natural regeneration, etc.;
  (c) activities outside the forest sector to reduce the pressure on forests (e.g., certified sustainable agriculture, sustainable wood energy supply chains, and agro-forestry).

**Phase 3: Performance-Based Payments**

Payment for performance on the basis of quantified forest emissions and removals against agreed reference levels. This may take the form of creditable or non-creditable payments.

Sources: Angelsen et al. 2009; Streck et al. 2009; IUCN 2009 cited from UNEP/GIZ, 2011

Among the forestry sector activities that can help reduce or avoid emissions, or increase the removal of GHGs are afforestation and reforestation, sustainable forest management, agroforestry, avoided deforestation/reducing emissions from deforestation and forest degradation (REDD); while biodiversity enhancing activities include watershed and soil management, biodiversity conservation. Employing sustainable land and forest management practices is beneficial for agroforestry for it increases resilience to climate extremes through improved water retention and enriched soil fertility, restoration of degraded lands such as watershed areas and reduce soil erosion, and in general enhances productivity, increase income and food security through a diversified production system (Seeberg-Elverfeldt, 2010).

The different phases of REDD+ mechanism will be country-specific. In phase 3, financing mechanism will be made available through carbon financing, where carbon equivalents (CO2-eq) are traded and the currency that will be used is termed as carbon credits. Carbon trading takes place between buyer and seller of carbon credits, where those who sequester carbon are paid and those who have to decrease emissions can buy carbon credits to offset their emission.

REDD+ scope goes beyond deforestation and forest degradation to include the maintenance and enhancement of forest carbon stocks. Forest conservation will compete financially with the economic drivers of deforestation that favors destructive logging practices and conversion of forest land to other uses like grazing land and agriculture. At present, most counties in the Asia- Pacific region are focused on REDD+ readiness, while Carbon Fund started its operation in 2011 as a public-private partnership.

There is no "one size fits all" solution when it comes to REDD+. Countries are allowed to design and implement REDD+ strategies using different models, thereby allowing the evolution of new sets of arrangements.

### *2.3.2 The Philippine National REDD+ Strategy (PNRPS)*

Among the significant milestones from which the Philippines responded in addressing climate change are the creation of the Inter-Agency Committee on Climate Change (IACCC) in May 1991, as a signatory to the UNFCCC on June 1992 and ratified on August 2, 1994, a signatory to the Kyoto Protocol on April 15, 1998 and ratified it on November 20, 2003, the designation of the DENR as the National Authority for CDM on June 25, 2004 by virtue of Executive Order No. 320, and the corresponding issuance of DENR Adm. Order 2005-17 last August 2005 on the Implementing Rules and Regulations Governing E.O. 320.

The Philippine government included the implementation PNRPS under the Conservation, Protection and Rehabilitation of the Environment and Natural Resources of the Philippine Development Plan for 2008-2016. While the approval of the National Climate Change Action Plan (NCCAP) in November 22, 2011 by the Philippine Climate Change Commission (CCC) placed the implementation of National REDD+ Strategy under the Ecosystem and Environmental Stability strategic priority. Among the eligible activities under REDD+ (according paragraph 70 of LCA text) are reducing emissions from deforestation, reducing emissions from forest degradation, conservation of forest carbon stocks, sustainable management of forest, and enhancement of forest carbon stocks. Issues related to REDD+ implementation that need to be addressed are the drivers of deforestation and forest degradation, land tenure issues, forest governance issues, gender considerations, safeguards, and full and effective participation of relevant stakeholders, inter alia, indigenous peoples and local communities.

The vision of PNRPS is to empower forestlands managers and support groups sustainably and equitably managing forestlands and ancestral domains with enhanced carbon stock and reduced greenhouse gases emission. Within the vision framework, the impact areas include reduced forest degradation and deforestation; poverty alleviation; biodiversity conservation; and improved governance. Its mission is for forestland managers to assume responsibility in implementing REDD+ programs, research, projects and activities with the support of international, national and local agencies, NGOs and other support groups. Among the values being promoted by PNRPS are to care for the Earth and life in

all its diversity; respect for human dignity; encourage social responsibility; attainment of social justice; transparency and accountability; and empowerment through partnership and collaboration. PNRPS is characterized by its seven (7) key features: nested, scaling up approach; priority development areas-Ancestral domain areas, protected areas, CBFM areas; community focus; decentralized forest governance; participatory planning and multi-stakeholder approaches; inter-sectoral approach; rigorous carbon accounting and watershed, ecosystem and landscape approaches.

The preparation of the Philippine National REDD+ Strategy (PNRPS) was spearheaded by the civil society groups especially the non-governmental organizations (NGOs). Among the activities undertaken were consultations, mapping and capacity building. This has led to the CoDE REDD Philippines foundation with the intention to explore and develop REDD+ in the Philippines and ensuring co-benefits for biodiversity conservation, ecosystem services and community development. Furthermore, the series of workshops led for the need to develop a multi-stakeholder REDD+ strategy that will facilitate REDD+ development in the country, particularly the PNRPS document (PNRPS, 2011).

The PNRPS is intended for a range of audiences, and has been developed to:

- Articulate a common vision among the stakeholders regarding the ways in which the REDD+ agenda should (and should not) be pursued in the Philippines;
- Guide the Philippine's Climate Change Commission as it further develops the National Framework Strategy and Program on Climate Change;
- Inform international donors that are currently funding country readiness activities and research about the intended direction of REDD+ development in the Philippines;
- Guide investors and donors considering REDD+ development in the Philippines, which are expected to adhere to the document principles, values and strategies;
- Provide a common resource for domestic institutions (academic, civil society, government) pursuing REDD+-related activities in the Philippines, and
- Serve as an initial resource for the further development of REDD+ informational and outreach resources for potential participant communities across the Philippines.

The 10-year time period (2010-2020) adopted by PNRPS serves as guide for the development of REDD+ activities in the country (Figure 2). The Philippine strategy is divided into three main Phases: Readiness, Scaling Up and Engagement. The elaboration of plans will be done during action planning to determine how to scale up from readiness to full engagement phase (PNRPS, 2011).

*Readiness Phase*. This Phase runs for 3-5-year period where majority of the strategies and activities in the PNRPS will be further prioritized, discussed and implemented. The period is slower than other countries as the Philippines believed that for REDD+ to be successful in reducing emissions it will need ample amount of time. The following are the target:

- Ongoing and expanded consultations and national communication and capacity building.
- Action planning and budgeting to facilitate implementation of the PNRPS.
- Efforts to identify short and long-term funding for REDD+.
- Establishment of pilot/demonstration sites and their related baselines, research, communication, capacity building, carbon monitoring and accounting, institutional support, policy reform, benefit sharing and incentive schemes;
- Identify and test appropriate carbon MRV approaches and ensure that these can be harmonized across sites and can be scaled up towards the national level.
- Development of new project sites in the provinces and regions of existing pilot/demonstration projects, where possible;
- Capacity building, institutional support and demonstration projects within the corresponding Provinces and Regions of pilot/demonstration sites,
- Establishment of the national-level bodies responsible for REDD+ policy, implementation and accounting; and
- National-level policy reform, establishment of national emissions reference levels and targets, establishment of clear safeguards, national-level institutional development, and research.

The three (3) on-going REDD+ Demonstration sites in the Philippines are the "Forest Policy and Piloting REDD measures through DENR with support from BMU/GIZ in Southern Leyte, Leyte Island, "Advancing Development of Victoria-Anepahan Communities and Ecosystems through REDD (ADVANCE REDD)" being funded by European Union Delegation (Southern Palawan) through NTFP-EP, and "Community Carbon Pools Programme (C2P2)" through FFI, NTFP-TF, Team Energy Foundation in General Nakar, Quezon.

*Overlapping Scaling Up Phase*. This Phase entail a prolonged scaling-up as some policies, sites and agencies will be prepared to engage sooner than others. Aside from scaling-up to the neighboring forests, PNRPS hopes to scale-up to the Provincial and Regional level pilots as these areas are integral to eventual national engagement.

*Engagement Phase*. It is hoped by 2015 the country will be able to engage with REDD+ at a

national scale, which will allow the Philippines to fully engage with performance-based compensation. Though this strategy is until 2020, REDD+ and low emissions forestry strategies can go beyond 2020.

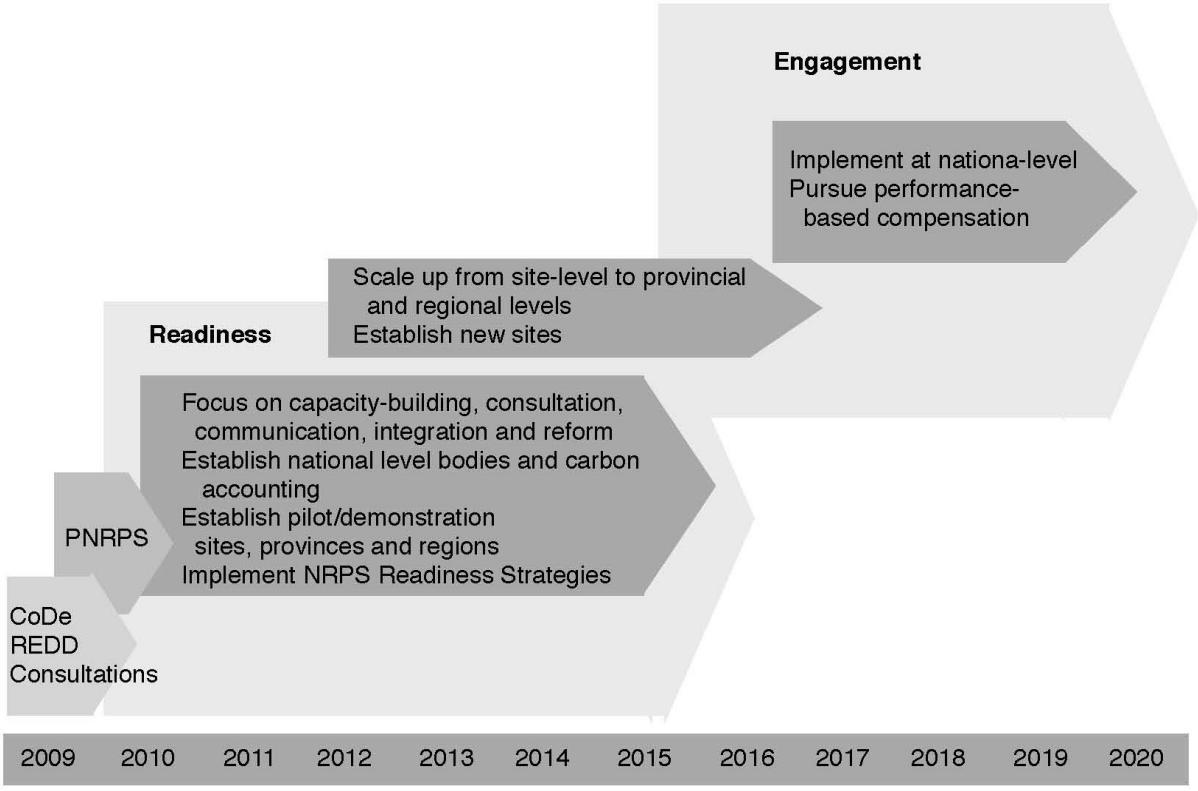


Fig. 2. Anticipated timeline of REDD+ development in the Philippines (Adopted from PNRPS, 2011).

*Key Features of the PNRPS*

The Philippine National REDD+ Strategy identifies nine key features that transcend all of its strategies and distinguish it among REDD+ developments internationally.

*Nested, Scaling-up Approach*: The Philippine strategy takes a scaling-up approach from the sub-national pilot/demonstration sites during the Readiness Phase and scale-up to Provincial and Regional pilot/demonstrations, while also expanding to new sites. It recognizes that REDD+ can be integrated into existing initiatives, and will involve pilot studies and gradual technical upgrading and capacity development. This will take a longer period of time especially if the national strategy is to ensure

safeguards, meaningfully engage stakeholders and guarantee emissions reductions without leakage. Although REDD+ implementation will begin at the sub-national level, the PNRPS targets national-level MRV starting from the initial Readiness Phase in the interim stage.

*Priority Development Areas*: Implementation of REDD+ will require broad national-level strategies to reduce emissions. However, especially during early stages of sub-national development, there are opportunities to focus REDD+ on priority sites. This Strategy prioritizes REDD+ development on a) sites where emissions reductions can be achieved at a reasonable scale and cost, b) tenured areas such as ancestral domain and community-based forest management areas, where safeguards are strongest and there is greatest opportunity to deliver multiple benefits, and c) protected areas and areas of key biodiversity concern, where REDD+ can be leveraged to deliver maximum emissions reduction, biodiversity conservation and ecosystem service protection.

*Decentralized Forest Governance*: The PNRPS seeks strategies that facilitate decentralized governance and local decision-making within broader national REDD+ planning and oversight. The PNRPS considers that local actors should be able to determine whether and how to engage with local REDD+ activities, should receive support and incentives to align their livelihood activities with low emissions objectives, and should be meaningfully involved in local REDD+ project design, monitoring, assessment.

*Building on Existing Structures*: PNRPS seeks opportunities to strengthen and align existing structures, rather than unnecessarily introduce new bodies and regulations. The PNRPS also endeavors to streamline REDD+ related processes to facilitate project development and avoid 'red tape'.

*Community Focus*: The PNRPS presents REDD+ as an opportunity to achieve multiple objectives and focuses heavily on communities, as most remaining forests in the Philippines are under some form of community management, largely within indigenous lands. The PNRPS seeks not only to maximize REDD+ social co-benefits, but to utilize REDD+ as a tool to promote community empowerment, tenure and effective resource management. This includes community rights to determine how and whether they engage with REDD+.

*Participatory Planning and Multi-stakeholder Approaches* The PNRPS is the result of these approaches, which should extend to future consultations, engagement, planning and implementation. They are key to increasing ownership and to effective and adaptive planning and management that will yield emissions reductions.

*Inter-sectoral Approach*: The PNRPS notes that strong inter-sectoral communication and coordination are needed to address the drivers of deforestation, many of which lie outside the forestry sector. The PNRPS presents several strategies intended to bolster this approach, including through policy reform, integration of REDD+ into local planning and by promoting multi-stakeholder governance structures.

*Rigorous Carbon Accounting*: The PNRPS recognizes the central importance of a establishing credible reference levels and ensuring measurable, reportable and verifiable emissions reductions at the national level. As such, the PNRPS prioritizes the research, capacity building and institutional structures required to establish national and sub-national reference levels and monitoring, reporting and verification.

*Watershed, Natural Ecosystem and Landscape Approaches*: While site-level management can provide some desired results, landscape, natural ecosystem and watershed-level management are comprehensive strategies that can better provide for multiple-benefits. REDD+ planning should adopt this approach, which is already part of national policies

In the context of the Philippines implementation of CBFM, REDD+ is seen as a promising initiative. It is perceived to build on the successes of CBFM and viewed to attain sustainable livelihoods due to the financial gains that will be received in the future. Hence, impacts can also be measured in terms of its contribution in improving the livelihood capital assets of local communities (Jagger et al 2010) most especially the CBFM-PO members. Furthermore, since the Philippines continue to pursue climate change mitigation, REDD+ initiative is also viewed as a function of adaptation (Philippines INDC document, 2015), hence, may somehow reduce CBFM vulnerability to climate change impacts. The knowledge about REDD+ is continuously evolving, triple benefits of emission reduction, biodiversity conservation and poverty alleviation and the issues of co-benefits and trade-offs (GIZ 2012; Inoue et al. 2013; Lasco et al. 2011), the 3E+ criteria of environmental effectiveness, economic efficiency and social equity (Agrawal and Angelsen 2009; Inoue 2012), and social and environmental safeguards (SES) (Jagger et al. 2014). The link between REDD+ and the vulnerable sector of the community has been well studied, particularly the aspect of improving local livelihoods with potential income from carbon trading (Lasco et al. 2011). The adoption of REDD+ and its impacts on vulnerable populations, in terms of exposure to stresses, including climate change, is well recognized in the REDD+ SES principle 3 (REDD+ SES 2012). However, no study has explored this connection yet. The IPCC-AR5 comprehensively outlined the potential vulnerability of REDD+ and other agriculture and forestry land use (AFOLU) mitigation measures to climate change (IPCC 2014), but did not mention whether REDD+

or any AFOLU strategies could address human vulnerability to the effects of climate change.

### *2.4 Vulnerability to climate change impacts*

Contemporary SL approaches or "asset vulnerability framework" originates from the economic literature concerned with famine in the early 1980s in Africa (Sen 1981). Predominantly, the climate-related context of vulnerability referred to is drought causing devastating problem of famine (Chambers 1989) which is further worsened by poverty hence poor people are considered the most vulnerable sector of the society (Swift, 1989). The vulnerability and exposure of the marginalized groups to climate change impacts will further intensify due to presence of non-climatic factors and multidimensional inequalities (income, gender, class, age, ethnicity, and inability, social and cultural characteristics) (IPCC, 2014). The developing countries in the tropics are considered the most vulnerable because of their coastlines, large populations, agricultural dependency and poverty, where a majority are living under US $1-2 a day (ADB, 2009). On the other hand, upland communities' vulnerability is primarily due to their fragile environment, high dependence on farming, limited adaptive capacity and unsustainable resource use (Tapia et al. 2014; Pandey and Jha 2012). The CBFM program, as the national strategy to attain social equity and sustainable forestry in the uplands, has a crucial role in climate change adaptation (Tapia et al. 2014; Ribot 2011) and mitigation (PNRPS Team 2010; Lasco et al. 2010). Therefore, assessing CBFM's vulnerability to climate change is an important step toward realizing sustainable forest management.

Vulnerability is defined as the degree of susceptibility of local communities to the impacts brought about by climate-related extremes. It can be measured as a combination of household/local communities' exposure, sensitivity and adaptive capacity (IPCC, 2007). Exposure pertains to the degree and extent of climate-related extreme events experienced (past and present) by the households/communities, while sensitivity refers to the degree to which household/communities are affected. Meanwhile adaptive capacity increases coping mechanism by means of adjusting the system's characteristics or behaviors to it (Fussel and Klein, 2006).

There are two context of vulnerability analysis to climate change, these are climate change impacts perspective and vulnerability perspective. Table 2 is adapted from IPCC-FAR Working Group II (2014:1144) showing the difference in both perspectives. The climate change perspective follows a top-down approach that pertains to the physical vulnerability of different systems to the future impacts of climate change thereby identifying the varying degree of vulnerability of such systems, where the starting point of analysis for vulnerability is through global-scale scenario of climate change impacts. On the other hand, the vulnerability perspective is a bottom-up approach dealing on the social vulnerability side and starts with the development context at the local level. However, the starting point of analysis in this perspective is on the present vulnerability to climatic variability, thereby finding ways on what needs to be done to address drivers of vulnerability and attain sustainable development. From this table, it can be surmise d that the climate change impacts perspective focuses on the mitigation aspect of response while the vulnerability perspective is on the adaptation side.

Table 1. Two possible entry points for thinking about vulnerability to climate change (illustrative and adapted from Fussel, 2007)

| **Context** | **Climate change impacts perspective** | **Vulnerability perspective** |
|---|---|---|
| Root problem | Climate change | Social vulnerability |
| Policy context | Climate change mitigation, compensation, technical adaptation | Social adaptation, sustainable development |
| Illustrative policy question | What are the benefits of climate change mitigation? | How can the vulnerability of societies to climatic hazards be reduced? |
| Illustrative research question | What are the expected net impacts of climate change in different regions? | Why are some groups more affected by climatic hazards than others? |
| Vulnerability and adaptive capacity | Adaptive capacity determines vulnerability | Vulnerability determines adaptive capacity |
| Reference for adaptive capacity | Adaptation to future climate change | Adaptation to current variability |
| Starting point of analysis | Scenarios of future climate change | Current vulnerability to climatic variability |
| Analytical function | Descriptive, positivist | Explanatory, normative |
| Main discipline | Natural science | Social science |
| Meaning of | Expected net damage for a given level | Susceptibility to climate and |

| | | |
|---|---|---|
| vulnerability | of global climate change | variability as determined by socioeconomic factors |
| Vulnerability approach | Integrated, risk-hazard | Political economy |
| Reference | IPCC (2001a) | Adger (1999) |

Source: Adapted from IPCC (2014) Working Group II Assessment Report – Part B Regional Context, p.1144

While it will be important to synergize adaptation and mitigation as the *Philippine Intended National Determined Contributions (INDC) is premised on the philosophy of pursuing climate change mitigation as a function of adaptation* (Philippine INDC document 2015), this study will focus on the vulnerability perspective providing some key insights on the synergistic role of mitigation and adaptation (M+A) towards effective promotion of sustainable development goals.

Numerous vulnerability assessments have already been conducted since the growing popularity of the climate change issue started in late 1990s and early 2000. In the context of the Philippines, the integrated assessment of impacts, vulnerability and adaptation to climate change project funded by START begun in 2001 highlighting the interconnectedness of the physical and social vulnerability of watershed areas and its communities to climate change impacts. Although earlier vulnerability assessments characterize the condition of vulnerability of households and communities with the intention to improve their condition by reducing current vulnerability, some key dimensions of vulnerability suggest improvement and sustainability of the watershed resources most especially water and forest products (Peras et al, 2008).

Recently, SLF is also gaining popularity among scholars in assessing the vulnerability of communities to climate change through composite indexing. Some of the indices developed using this framework at the household level include the Livelihood Vulnerability Index (Hahn et al. 2009; Shah et al. 2013; Amos et al. 2015), the Environmental Vulnerability Index (Yoo et al. 2014); the Inherent Vulnerability Score (Rajesh et al. 2014), and Indicator-Based Vulnerability Assessment (El-Zein and Tonmoy 2015).

The Livelihood Vulnerability Index (LVI) developed by Hahn et al (2009) which is further modified by Shan et al. (2013) takes the SLA using the household's livelihood capitals/ assets, namely, human, natural, financial, physical and social, in multiple indices to assess exposure to natural disasters and climate variability; social and demographic features of households that affect their adaptive capacity; and the present health, food and water resources that determine sensitivity (Shah et al. 2013). These

different assets are spread according to the suitability of the conditions in the vulnerability equation, where sensitivity of the household includes health condition of members, food and water dependency; while exposure includes natural hazards experience such as floods, drought and cyclones as well as the average daily maximum and minimum temperature and precipitation, and adaptive capacity takes the form of demographic characteristics of the household, livelihood sources and social networks.

### *2.5 Forest and Natural Resources Governance*

The attainment of sustainable forest management in CBFM areas is continuously challenged by the twin problems of forest degradation and upland poverty. The challenges that persist to confront the forestry sector are in general multi-actor, multi-sectoral and multi-level in nature (Pulhin et al. 2015). Added to this fact is that a major part of the problem lies with poor forest governance. Recent (new) modes of forest governance that focus on decentralization, community-based, market-oriented tools and participatory approaches (Arts et al 2014) aim towards sustainable forest management in a changing global climate.

Buttoud (2014) refers to forest governance as encompassing *a) all formal and informal, public and private regulatory structures, i.e. institutions consisting of rules, norms, principles, decision procedures, concerning forests, their utilization and their conservation, b) the interactions between public and private actors therein and c) the effects of either on forests.* It also refers to policy, legal, regulatory and institutional framework dealing with forests and to the processes that shape decisions about forests and the way these are implemented. Its practice is based on fundamental democratic principles of participation, fairness (equity), accountability, legitimacy, transparency, efficiency, and sustainability (FAO, 2012; WRI, 2013). On the other hand, GFI (undated) considered five principles of good forest governance transparency, participation, accountability, coordination and capacity. Secco et al (2014) included sustainable glocal development, efficiency, effectiveness, participation, transparency, accountability and capacity. These are equally important principles toward good governance.

Good forest governance in lieu over the currently perceived bad practice of forest governance is desired by majority in the forestry sector. However, a number of constraints/problems encountered especially by CBFM-POs become barriers to the successful implementation of CBFM. Good forest governance indicators and principles can now be assessed and monitored using the guidelines as outlined by FAO, PROFOR, and WRI. Recently, GIZ presentation in the 2015 World Forestry Congress

combined these indicators subscribing to the pillars of forest governance (policy/legal/institutional frameworks; planning and decision-making process; implementation, enforcement and compliance) and principles (accountability, transparency, participation, capacity, coordination) in analyzing the good forest governance goal of REDD+ implementation in the country (Liss et al. 2015). However, one important principle lacking is social equity which is a major concern of CBFM towards democratization of resource access and control.

# Chapter Three

# Methodology

## 3.1 The Research Approach

### *3.1.1 Case Study Research Strategy*

This study adopted the case study research strategy due to the explanatory nature of the research questions "how" and "why" that further allows explanation of the operational links traceable over time. It is an empirical research investigating contemporary phenomenon within real-life context especially when the boundaries between the two are not obvious. To better enhance the inquiry it necessitates the use of multiple sources of evidence, both qualitative and quantitative, where data can be converged or triangulated, hence, provide a more robust understanding of the phenomenon being studied (Yin, 2003).

Case study can also be used in evaluation research by explaining the complexity of presumed causal links in real-life interventions, describing an intervention as well as its real-life context, illustrating certain topics within an evaluation, exploring situations where interventions evaluated has no clear and definite outcomes, and, using meta-evaluation.

### *3.1.2 Research Design*

According to Yin (2003), research design is the logical sequence that links the empirical data to the initial research questions and ultimately to the study's conclusions. It can be taken as a logical plan for generating data and subsequently make conclusions. Also served as guide for the researcher in the process of collecting data and interpreting observations, thereby providing proof where inferences can be drawn concerning causal relations of variables under investigation (cf. Yin, 2003). Therefore, a mismatching of the empirical evidence with the initial research questions can be avoided.

Multiple case studies is particularly preferred in this study because evidences are often considered more compelling and powerful where results may likely differ to some extent thereby making the research more robust. It also follows the replication logic where cases are carefully selected to predict similar

results often referred to as literal replication, or predict contrasting results for predictable reasons known as theoretical replication (Yin, 2003). This logic is important to enrich the development of the theoretical framework, from understanding the conditions to which the particular phenomenon is likely to be found (literal replication) as well as the conditions where it is missing (theoretical replication with contrasting conditions). Hence, new generalizations can be made using the theoretical framework as basis.

Household survey for each of the case study site can also be conducted to address the research questions. The result of the survey cannot be pooled together as one[2], however, the results of the individual cases can be triangulated with available secondary data and qualitative data to comprehensively analyze the cases selected further allowing the researcher to see broader implications of the research.

This study investigated the contribution of REDD+ initiative in the attainment of sustainable development principles in CBFM areas as it is presumed to build on the successes of CBFM implementation. Considering that REDD+ pilot demonstration areas in the country are located in Northern Luzon, Palawan and Southern Leyte, a representative from these 3 would be an appropriate case. Of the 3 pilot areas, only Southern Leyte REDD+ is being implemented by CBFM-POs which is the main concern of this study, hence, selected to be a case for the CBFM with REDD+ initiative. To better understand the complexity of REDD+ implementation in CBFM area, a similar CBFM-PO considered to be ordinary[3] in the context of Philippine CBFM is worthy to be compared to the first case, where attribution of impacts can be supplemented by each case survey respondent's perspectives. The members of the CBFM-POs from both cases became the unit of analysis from which impacts of CBFM and REDD+ will be gathered and analyzed. The result of the analysis from the household survey will supplement the findings derived from available secondary data and qualitative data (focus group discussions, key informant interviews, reconnaissance survey) towards comprehensively analyzing broader implications of the research, particularly on the general implementation of CBFM in the country.

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[2] *If analyzed as one across different cases, it may consider using a survey design rather than multiple case study design.*

*3 Ordinary CBFM-PO is referred to POs whose main development activities are DENR-dependent or funded.*

### *3.2 Case study site selection*

Two CBFM people organizations (POs) from the province of Southern Leyte were compared for this study: the Young Innovators for Social and Environmental Development Association (YISEDA), with a REDD+ readiness project initiative, and the Malitbog Upland Developers for Sustainable Association (MUDSA), with a National Greening Program project (Figure 2; Table 1). In addition, YISEDA is among the three pilot demonstration areas for REDD+ implementation in the Philippines supported financially by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. Both CBFM areas exhibit a long history of participatory forest management, with and without a REDD+ initiative, with a high susceptibility to landslides (MGB-DENR and JICA 2006) and typhoons as well as nearly the same organizational characteristics, such as the year of PO establishment, year CBFM was awarded, number of members, and total CBFM area (CENRO-Maasin City CBFMIS) are among the criteria used in the selection of the study sites. Added to this fact is the unique characteristic of YISEDA recognized nationally as a good performing CBFM-PO who started from small beginnings whose main engine for success is the "voluntary" system of participation in all its development activities. Meanwhile MUDSA exhibits common CBFM-PO with some development projects funded mostly by the Department of Environment and Natural Resources (DENR).

### *3.3 Brief profile of the study sites*

#### 3.3.1 Young Innovators for Social and Environmental Development Association (YISEDA)

YISEDA_is one of the three REDD+ pilot demonstration sites in the country. YISEDAs beginnings in forest management and development manifested when 44 community members tilling portion of the forest land, admittedly doing illegal forest activities (logging, charcoal and *kaingin* making), joined the Department of the Environment and Natural Resources (DENR) Integrated Social Forestry Program (ISFP) initiative in Sitio Canlugoc, Barangay Lunas, Maasin City, Southern Leyte. On November 28, 2000, a CBFM Agreement with a 25- year tenure renewable for another 25 years, covering 549 ha of forestland was granted to YISEDA entrusted with the sole responsibility of management and development

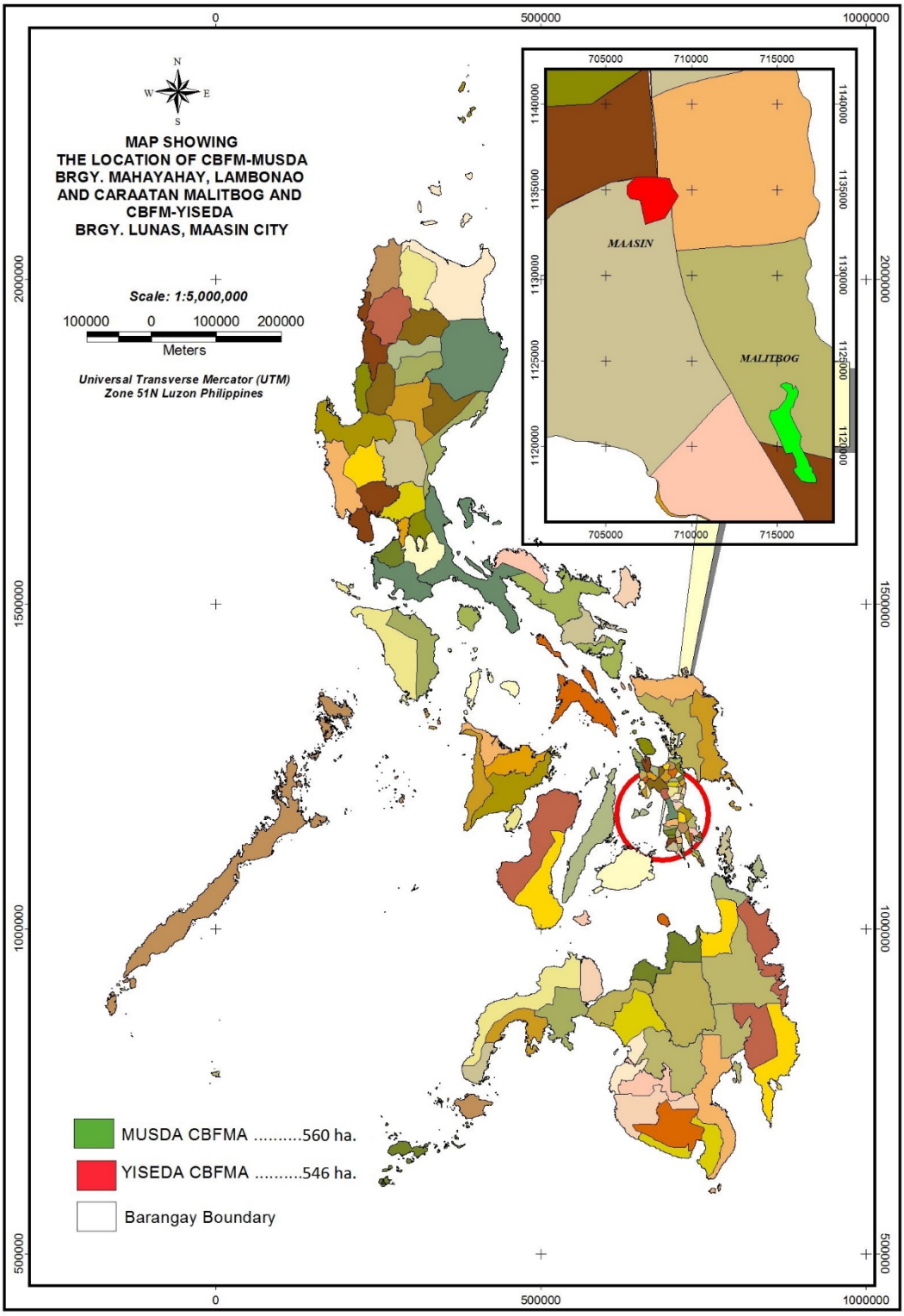



Figure 3. Location map of the case study sites

Table 2. Some basic features of Young Innovators for Social and Environmental Development Association (YISEDA) and the Malitbog Upland Developers for Sustainable Association (MUDSA) Community-Based Forest Management (CBFM).

| ***Features*** | ***YISEDA*** | ***MUDSA*** |
|---|---|---|
| *Location* | So. Canlugoc, Bgy. Lunas, Maasin City, Southern Leyte | Bgy. Mahayahay, Lambonao and Caraatan, Malitbog, Southern Leyte |
| *Tenure* | Community-Based Forest Management Agreement (2000) | Community-Based Forest Management Agreement (2000) |
| *CBFM Area* | 549 ha | 563 ha |
| *Members* | 108 | 107 |
| *Land use* | Virgin forest (48.78%); Agricultural cultivation (30.33%); Brushland (17.83%); Agroforestry 3.06%) | Protection forest (11.24%); Production forest – open/ cultivated/ CSC[4]/ refo) (88.75%) |
| *Development Projects* | FAR [5] Contract Reforestation; FOBI [6] Reforestation Project; Rural Development Initiatives (RDI) Agroforestry project; Heifer International Livestock Project; GIZ REDD+; DENR Upland Development Project, Comprehensive Agrarian Reform Program and National Greening Program | Comprehensive Agrarian Reform Program for soil and water conservation training and animal dispersal project; Dept. of Agriculture goat dispersal; FCI; DENR National Greening Program |
| *Harvesting Operation* | First operation in 2012 | None |
| *Income sources* | Farming, laborer, others | Farming, laborer, others |
| *Products* | Vegetables, root crops, banana, coconut, abaca, rice | Rice, coconut, abaca, banana, root crops, vegetables |
| *Distance to town* | 20 km | 2.5 km |
| *Transportation accessibility* | Limited motorbikes (*Habal-habal*); 1 passenger truck | Many motorbikes (*Habal-habal*); |
| *Threats to forest management* | Illegal cutting, typhoons, forest fires, charcoal making | Forest fires, kaingin/ slash and burn agri., typhoons, illegal cutting, landslides |
| *Awards received* | Best Performing CBFM People Organizations in 2012 | None |

*Source: Community Resources Management Framework (CRMF) of YISEDA and MUDSA*

[4] *CSC – Certificate of Stewardship Contract;*

[5] *FAR – Family Approach to Reforestation*

[6] *FOBI – Federation of Omega Beneficiaries Incorporated*

non-forest products-based livelihood opportunities, utilization of minor forest products, and other activities (DENR Region 8 Brochure YISEDA, Undated). The organization's proactive nature brought numerous development projects from various non-governmental organizations such as the Rural Development Initiative, Federation of Omega Beneficiaries Incorporated, Heifer International, and others, providing occasional income for members. Also, with the decline of income from abaca (*Musa textilis*) since 2006 due to "bunchy top" disease infestation, upland farmers tried to cope by gradually planting coffee, banana, and root crops.

The 549 ha CBFM area of YISEDA located in Barangay Lunas, Maasin City, Southern Leyte is under the three year (2010-2013) GIZ-funded REDD+ project titled "Climate-Relevant Modernization of Forest Policy and Piloting of REDD in the Philippines". The project focused on forest policy reforms and REDD+ pilot activities that served as source of information for REDD+ implementation in the country. Currently the organization have 108 members, composed of the original 44 members while 64 new members are classified as associate members[7]. Benchmark information on the site has already been collected by GIZ, there is however very limited published study especially on the social dimensions of CBFM and REDD+ in the case of the Philippines.

YISEDA has proven their potential in CBFM implementation. The PO members are actively involved in all projects, specifically with GIZ-funded project that offers alternative livelihood sources, along with the protection of 5,000 ha of natural forests in the nearby protection forest and establishment of 2,000 ha of species-rich reforestation, capacity development not only of YISEDA but also for DENR, LGUs and partner agencies (Lasco et al. 2011). YISEDA has ventured into a number of projects such as livestock dispersal in June 2007 administered by the Rural Development Inc. (RDI) and funded by Heifer International-Philippines. Other livelihood projects introduced included vegetable plantation and livestock production which served as food source for the impoverished members of the organization and helped their malnourished children. In 2009, a financial assistance to strengthen the CBFM program was granted to YISEDA by the Agrarian Reform Fund (ARF) under the Comprehensive Agrarian Reform Program (CARP) that supported the Philippine's Hunger Mitigation and Poverty Alleviation Program.

#### 3.3.2 Malitbog Upland Developers for Sustainable Association (MUDSA

[7] Recruitment of new members is in response to the Upland Development Program (UDP) requirement in 2009, where one household represented by one CBFM-PO member is entitled for the 1 ha agroforestry development of forest land under the program.

MUDSA*)* is a CBFM-PO comprising of 107 members from the three (3) contiguous Barangays of Mahayahay, Lambonao and Caraatan in the Municipality of Malitbog, Southern Leyte. It was an ISF site since 1989 before CBFM Agreement was granted in 2000 covering a total area of 563 ha. The certificate of stewardship contract (CSC) was only awarded to individual farmers or heads of households in 1997, good for a maximum of 50 years depending on the degree of farm development. MUDSA was also a beneficiary of the DENR-funded Comprehensive Agrarian Reform Program (CARP). Among the activities under the program include soil and water conservation measures, farm-to-market trails, irrigation canal, and livestock production/disposal (sheep, goat and ducks). The present land use consist of 63.3 ha of protection forest (11.24%) and 499.7 ha of production forest (88.75%) classified as open/cultivated/CSC areas/ reforestation areas. About 224.67ha of the CBFM area have more than 18% slope. The forest tree species planted are mahogany, gmelina, narra, molave, lauan, tiga, lanipga, and himbabaod. MUDSAs community resource management framework (CRMF) outlined the set of activities to be undertaken for 2011-2015 such as forest development into tree plantations, agroforestry, rattan and bamboo plantations and protection forest for assisted natural regeneration (ANR)/ enrichment planting; resource utilization; information and education campaign (IEC); and forest protection such as patrol works, look-out tower, and greenbelt establishment. However, all these proposed activities have not materialized at present. More recently, the only development project MUDSA implemented was the national greening program (NGP) of the DENR. Financial and technical support were provided by the DENR, provincial government, and Department of Agriculture (MUDSA Community Resource Management Framework, Undated).

The findings of the study is limited only to the conditions existing in the two CBFM case study sites due to the diversity in the local socio-economic and biophysical contexts of CBFM areas in the Philippines,. Hence, the results may not reflect the situation in all CBFM areas in the country and the world. However, they provide an understanding on the likely contribution of CBFM in the achievement of sustainable livelihood goals of households and local communities.

### 3.4 Data collection and analysis

Past assessments on the likely impacts of CBFM in the Philippines and in other tropical areas mainly consider the perspectives of the researchers. This study highlighted the perception of the local stakeholders in assessing the impacts of CBFM on the livelihood capitals of the households and local communities. A combination of data collection methods to address the objectives of the study are

employed, i.e. qualitative and quantitative approaches described below.

### 3.4.1 Qualitative approach

The qualitative approach consisted of focus group discussions (FGDs), key informant interviews, observation of the community, and reconnaissance survey. FGDs were conducted among the different stakeholders, the members of CBFM-POs and representatives of various local institutions. In general, the ideal number of participants in most FGDs conducted is six to ten individuals. However depending on the moderator others have used up to fifteen people (Gilbert 1997). Hence, in the conduct of the FGD for this case study a total of 12 participants were invited from the members of CBFM-POs where the invitation for the FGD in the community was facilitated by the CBFM-PO officials. Among the criteria set for the selection of participants include gender balance, age group should be more than 30 years old, and with representatives from new and old members. Meanwhile, the focal person or individuals working on CBFM and REDD+ and gender balance were used as criteria in the selection of the institutional participants which includes provincial, municipal, barangay LGUs, DENR from CENRO, PENRO and Regional Office, and GIZ field personnel. The invitation for the local institutions was facilitated by the REDD+ Focal person in DENR-PENRO and CENRO in Maasin City, Southern Leyte. Key Informant Interview (KII) on the other hand was also undertaken to solicit the perspectives of some key people knowledgeable on the area of the concern of the research. This has provided some key insights on the comprehensive analysis of the research topic. Among the key informants were the CBFM Regional Coordinator, DENR - REDD+ Focal Person at the CENRO Office, staff of PENRMO, staff of Municipal ENRO/DA, LGU-Barangay Captain, elder member and officials of the CBFM-POs, DENR-FMB REDD+ Focal person and staff of the Climate Change Commission.

### 3.4.2 Quantitative approach

The quantitative approach consist of the conduct of the household survey to 108 members of YISEDA (51.85%) and MUDSA (48.60%). A semi-structured survey questionnaire was prepared and tested before the actual conduct of the survey to improve the information needed for the analysis. Household heads were the target interviewee. The availability of members and their active member classification in the organization were the criteria considered in the selection of the interviewee. The data from the household survey was used in the analysis of impacts of CBFM and REDD+ as well as in the assessment of vulnerability to climate change impacts where a vulnerability index estimation was

employed. Full details of the index estimation is elaborated in Chapter 6.

## 3.5 Data analysis

Descriptive statistical analysis and a two-tailed t-test were performed in the analysis of impacts of CBFM and REDD+ between periods and in exploring the variation of the normalized indicators and the vulnerability indices between the two CBFM-POs. Change attributable to CBFM and REDD+ were further analyzed in terms of selected key indicators, such as the condition of the resources (land, water, forest, etc.), general well-being, income, access to resources, control over resources, ability to participate in community affairs, ability to influence community affairs, community conflict, compliance with resource management and amount of traditionally harvested resources contributory to CBFM and REDD+ implementation. A ladder diagram approach was used to determine changes in the three periods, i.e., without CBFM (T1) refers to condition before CBFM (year 1999 for YISEDA and MUDSA), with CBFM (T2) refers to condition during CBFM implementation (2000-2010 for YISEDA and 2000 to present for MUDSA) and with REDD+ (T3)[8] refers to condition during REDD+ pilot demonstration project activities. Ladder diagrams are a visual, self-anchoring technique allowing respondents to make finer ordinal judgements, as this places less demand on informant memory and can be done more quickly (Pomeroy *et al*. 1997). Hence, differences or changes between T2 and T1 are attributable to CBFM, while those between T3 and T2 are attributable to REDD+. Each period is scored based on the ladder diagram with 1-10 steps delineating indicators, such as resources, well-being, and income that improved during each period. A score given by the respondent towards the upper portion of the ladder indicates improvement during the prescribed period. A lower score indicates little or no improvement during the time period.

[8] *Only YISEDA members were asked questions about REDD+.*

## Chapter Four

## The livelihood capitals' impacts of CBFM implementation


### Abstract

This chapter determines the impacts of CBFM on the livelihood capital assets of the households. A combination of data gathering methods were used in determining the over-all impacts of CBFM on the human, natural, financial, physical and social capital assets. This chapter also compares the impacts of CBFM on the livelihood capitals of two CBFM people organizations (POs) with and without REDD+. Results of the study revealed that CBFM implementation contributed largely to building the capital assets of CBFM members, especially the human, social and physical capitals. The over-all condition of the forest, land and water resources improved in YISEDA but not in MUDSA. YISEDAs forest conservation activities led to the revegetation of the entire CBFM area. Meanwhile, the declining natural capital asset in MUDSA is due to human abuse and climate change impacts. Moreover, both CBFM-POs show natural capital assets declined with respect to access, control and amount of resources traditionally harvested. Likewise financial capital asset in the case study sites declined with CBFM implementation. The livelihood strategies introduced with CBFM intended to improve the condition of living did not contributed to improving income and its sources. Full positive effects of CBFM have to be realized for the financial and natural capitals. Access and control over the resources are key factors toward more meaningful implementation of CBFM.


### 4.1 Introduction

The rapid change in the global context of forest policy environment has been adapted by countries like the Philippines. In the 1960s, economic development was pursued through the massive liquidation of the country's forest resources following the industrialization model of forestry development. The realization of the model's inability to achieve forest conservation and socio-economic development for the forest-dependent communities led to a more participatory approach to forest management, known as the Community-Based Forest Management (CBFM).

The three decades of CBFM implementation produced some positive results in improving forest conditions and promoting livelihood and social equity in the uplands (Pulhin et al., 2010). CBFM is still evolving with the addition of global forestry issues of climate change and biodiversity conservation vital to forest management. The recognition of community forestry's (CF) immense potentials in forest and natural resources management is seen in the growing global trend of tropical decentralization in favor of

upland communities (Pulhin et al., 2007). The impacts of CF on the livelihood capital assets of local communities' highlights this potential (Dahal and Adhikari, 2008) especially to the people organization (PO) members' households . The major impact area of the CF initiatives' livelihood sustainability lies in any improvement in the human, financial, natural, physical and social capitals. Key insights from the local stakeholders involve in CBFM implementation are vital in the assessment of CBFM impacts. Therefore, local stakeholders' such as members of the CBFM-POs, government agencies, local government units (LGUs), civil society organizations (CSOs) and non-government organizations (NGOs), perspectives is central to this study.

In assessing the impacts of CBFM, recognition of the local stakeholder's engagement is vital in determining success and failure. Past assessments of CBFM impacts in the Philippines and in other countries normally considers researcher's and expert's point of view. Soliciting the perspectives of the local stakeholders is also vital in this study. Hence, this chapter presents the research question: Does CBFM help improve the livelihood capitals of the PO members' households? Are there significant differences on the impacts of CBFM between two (2) CBFM-POs with and without REDD+?

The perspectives of the members of the CBFM's PO and the local organizations and institutions working in the CBFM/ REDD+ pilot demonstration area in Maasin City, Southern Leyte, Philippines were considered in this paper. The paper aims to provide an understanding on the current impacts of CBFM initiatives affecting the livelihood capital assets of the local communities particularly of the members of the CBFM POs and compare the impacts between the two CBFM-POs with and without REDD+ pilot project.

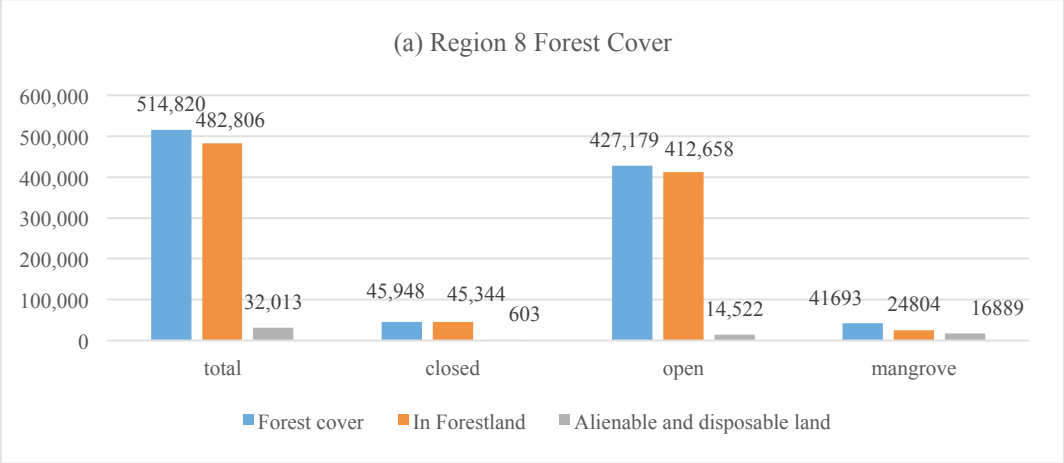
### 4.2 The Southern Leyte Community-Based Forest Management (CBFM) program

The consolidation of the people-oriented forestry projects in the past gave birth to the institutionalization of Community-Based Forest Management (CBFM) Program. CBFM was adopted in 1995 through the issuance of the Executive Oder (EO) 263 as the Philippines' national strategy towards sustainable forest management and social justice. The program was viewed to address the twin problem of upland poverty and forest degradation (Pulhin et al. 2007, Pulhin & Dressler 2009). More specifically, the program aimed to:

- protect and advance the right of the Filipino people to a healthful environment
- improve the socio-economic conditions of the Filipino people through the promotion of social justice and equitable access to and sustainable development of forestlands resources
- respect the rights of indigenous peoples to their ancestral domains by taking into account their customs, traditions and beliefs in the formulation of laws and policies

There are a total of 4,307 tenurial instruments in the country covering an aggregate area of 2.9 million hectares. Tenured areas totaled 1.6 M ha (55.22%) awarded to 1,888 Community-Based Forest Management Agreement (CBFMA), benefitting the households of 192,090 members of the 1,888 formally organized CBFM-POs (DENR 2012). The fifty (50) years contract duration entered between the organized PO and the DENR clearly provide for the roles and responsibility of both organizations. The POs regarded as forest stewards are task with the protection and management of the area following sustainable forest management principles.

Southern Leyte has a total forest cover of 29,630 ha out of the 514,820 ha covering the entire Region 8 (Figure 4-a). About 482,806 ha of forest cover in the Region are within forestlands where a majority of 85.47% are classified as open area (Figure 4-b). The percentage of open forest area in Southern Leyte is almost the same in the region with 87.13% out of the 26,395 ha of forest inside forestlands. Considering the total forest cover within forestlands Southern Leyte's open forest classification is 5.57% of the entire region. These forest covers are in some way under the management of local communities through their CBFM agreements. There are a total of 144 CBFM-POs with 8,270 members managing a total forest land of 116,421.70 ha. Meanwhile, the 18 CBFM-POs in Southern Leyte with 991 members are managing 10,805.65 ha of forest lands.



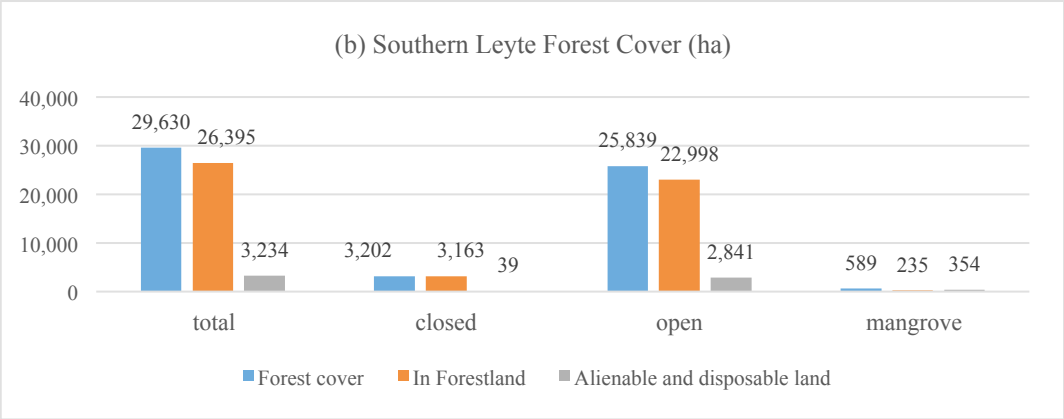



Figure 4. Forest cover of (a) Region 8 and (b) Southern Leyte, Philippines.
Source: DENR-FMB. 2015. Philippine Forestry Statistics.

### 4.3 The livelihood capital asset link of community-based forest management (CBFM)

The community-based forest management (CBFM) adoption in 1995 targeted the revegetation of 5 million ha of denuded forest lands. After 10 years of implementation, DENR records show that about 600,000 ha of forest lands have been planted under the CBFM program (Chokkalingam et al 2006). This is a meager 12% of the target area. Poverty alleviation objective still not met and have been the outcry of upland poor. A couple of case studies show success and failures of CBFM implementation. New and upcoming initiatives in the forestry sector like REDD+ can learn from important lessons of CBFM implementation (Lasco et al., 2011; Poudyal et al., 2013, PNRPS, 2010). The challenges of CBFM implementation unfolded through case study assessments include capacity building of local communities (POs and CBFM federations), DENR and the local government units (LGUs); promotion of sustainable livelihood activities focusing on improving the livelihood and income of local communities; strengthening organizational linkages and support; simplification of regulatory procedures and decentralization of resource use permits; improving current management information and monitoring and evaluation system; and clarifying and strengthening the role of stakeholders in enhancing support to CBFM (Dahal and Capistrano, 2006; Pulhin et al., 2007; Pulhin et al., 2008; Larson and Pulhin, 2012).

Improving and sustaining the livelihoods of upland communities is a major objective in the implementation of CBFM in the country. Sustainable livelihoods (SL) promoted by Amatrya Sen is used by many scholars to assess the impacts of development initiatives to the livelihoods of the poor (DFID, 1992). This approach promotes the holistic view of development by allowing the interaction of the five (5) livelihood capital assets, a departure from other development methodologies (Sing and Wanmali 1998; Kaushal1 and Kala 2004).

This chapter considered the SLF in analyzing the overall impacts of CBFM on the local stakeholder's livelihood capital assets. The framework provides an overall picture on the livelihoods of the local community especially the poor and vulnerable, which can be affected, either positively or negatively, by any development initiative. By definition "a livelihood comprises the capabilities, assets and activities required for a means of living". Livelihood sustainability depends on its capacity to cope and recover from stress and maintain or enhance its capabilities and assets in the future (DFID, 2001:2). CBFM is both a conservation and development initiative aimed to generate greater impacts on the natural, human, financial, physical and social capital assets of the local communities.

The analysis combines the result of the quantitative and qualitative approach in determining impacts on the livelihood capital assets as perceived by local stakeholders at in 2 periods, before and during CBFM.

## 4.2 Materials and Methods

### *4.2.1 The Case Study Site*

Two case study sites have been selected for the study. These are the YISEDA and MUDSA located in Sitio Canlugoc, Barangay Lunas, Maasin City and Barangays Lambonao, Mahayahay and Caraatan, Malitbog, Southern Leyte, respectively (Figure 3). Both are granted the community-based forest management agreement (CBFMA) in almost the same year, 2000. YISEDA is a REDD+ pilot demonstration project area from 2010-2013 with funding support from GIZ with the DENR in collaboration with the LGUs as the main implementor. While MUDSA, is a non-REDD+ pilot site. The criteria in selecting the case study sites are the presence of a participatory forest management (PFM) project, age of CBFM-PO, and the same number of membes. Both sites were under the Integrated Social Forestry Program (ISFP)[9] in the 1980s before it was granted CBFMA in 2000. A summary of the characteristics of both CBFM-POs are presented in Table 2. A detailed description of the CBFM-POs is discussed in Chapter 3.

### *4.2.2 Data collection and analysis*

#### 4.2.2.1 Qualitative Approach

Three focus group discussions (FGDs) were conducted separately for YISEDA, MUDSA and local institutions working in CBFM and REDD+, which was attended by of 12, 15, and 10 participants,

[9]ISFP was launched in 1982 and birth to the people-oriented forestry programs and projects in the Philippines. The program consolidated earlier programs on Forest Occupancy Management, Family Approach to Reforestation and Communal Tree Farming.

respectively. The ideal number of FGD participants that can be managed by the one (1) facilitator is 15. The invitation for the FGD was assisted by the CBFM focal person in DENR–PENRO Southern Leyte and the corresponding Presidents of both YISEDA and MUDSA. The selection of participants was guided by the criteria: gender balance, age more than 30 years old and member of both CBFM with equal number of old and new membership. On the other hand, the local institutions group was attended by representatives from the municipal and barangay LGUs, DENR – Regional, Provincial (PENRO) and Community (CENRO), and GIZ field staff. The conduct of these FGDs was vital for the study for the perspectives of local stakeholders were captured. The views may differ within the same group but they always arrived at a consensus to highlight the positive and negative side of their opinions. These perspectives further strengthened the result of the whole study.

4.2.2.2 Quantitative Approach

Household survey constitute the major data collection method conducted from September 2014 until February 2015. Primary data such as socioeconomic and livelihood capital assets (human, natural, physical, financial and social) characteristics were collected using structured interview schedule from the 108 YISEDA and MUDSA members. The 108 sample respondents were derived using Slovin's formula (Lantara et al. 2012) commonly used for proportion sampling in social research. Also, available secondary information from scientific literatures and reports from the DENR Field offices and other pertinent institutions were gathered to better understand the context of the study. Data and information gathered were used to triangulate information gathered from other sources such as FGDs and household survey.

A descriptive statistics was used to describe and compare CBFM-PO household's livelihood capital assets . Three periods, before CBFM, during CBFM and during REDD+ were used to determine the impacts of CBFM and REDD+ on the livelihood capitals indicators. The resultant difference between two periods such as before CBFM and during CBFM pertains to impacts of CBFM. However, the attribution is made clear before any question was asked. A descriptive statistics on the impacts of CBFM on the livelihood capital assets was used to substantiate information obtained from the FGD.

## 4.3 Results

### *4.3.1 Socio-economic and demographic profile of the respondents*

The current socio-economic and demographic characteristics of the CBFM-POs are important indicators of the existing condition of the households.

4.5.1.1 Socio-Demographic characteristics

Socio-demographic characteristics refer to age, education, gender, size of households, and dependency ratio of members in the households presented in Table 3. Majority of the respondents fall within the age group 31-65 years old, 33.93% of YISEDA have ages between 31-45 years old while 32.69% of MUDSA members are old . Majority of the respondents from both sites are female (54.63%). The males are always out either working in the farm field or outside the community. Hence, female spouses stayed at home to care for the children. Also, for FGDs it has been a common practice among PO members to send female spouses whenever the male household heads are working. But for important meetings of the organization, it is normally the male members who attend.

A greater number of respondents from both sites stayed in school for 6 years and below (58.33%) covering Grades 1 to 6 year level of primary education. About 64.29% and 51.92% of which are from YISEDA and MUDSA, respectively. Only a small number of respondents were able to reach the tertiary level staying in school for more than 11 years. As regards composition of members in the household, about 47.22% from both sites have 4-6 household members. YISEDA and MUDSA have almost the same member composition, around 48.21% and 46.15%, respectively. The dependency ratio is high at more than 100% where majority of the respondents fall (30.56%). This very high dependency rate, in general, is mainly due to the presence of only one (1) working age household member earning income for the whole family. About 25% of MUDSA members have dependency rate of 76-100% while 37.50% of YISEDA have a greater than 100%. There is a need for members to source income to feed the family most especially for households with higher dependency rates. Hence, improving the livelihoods of these communities are utmost important for the CBFM program.

The patriarchal nature of Filipino families means that households are headed by the older male member of the family. In both sites, majority of the households are headed by males (55.56%), although there is a high number of female headed households (44.44%). A higher percentage of the household heads reached and/or a graduate of primary education (51.85%). Support systems have to be provided for low level of education of household heads to make them more competitive in sourcing income outside of the community.

#### 4.5.1.2 Farm characteristics

Farming dependency refers to the percentage of the total income sourced from farming. The dependency of majority (35.19%) of the respondent's on farming are more than 75.01% (Figure 5-a).

The same is true for MUDSA for 48.08% of its members. However, for YISEDA the majority of the

Table 3. Socio-demographic characteristics of YISEDA and MUDSA respondents

| Variables | YISEDA | | MUDSA | | TOTAL | |
|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % |
| Age | | | | | | |
| < 30 | 4 | 7.14 | | | 4 | 3.70 |
| 31 - 45 | 19 | 33.93 | 8 | 15.38 | 27 | 25.00 |
| 46 - 55 | 14 | 25.00 | 12 | 23.08 | 26 | 24.07 |
| 56 - 65 | 12 | 21.43 | 15 | 28.85 | 27 | 25.00 |
| > 66 | 7 | 12.50 | 17 | 32.69 | 24 | 22.22 |
| Total | 56 | 100 | 52 | 100 | 108 | 100 |
| Gender | | | | | | |
| Male | 24 | 42.86 | 25 | 48.08 | 49 | 45.37 |
| Female | 32 | 57.14 | 27 | 51.92 | 59 | 54.63 |
| Total | 56 | 100 | 52 | 100 | 108 | 100 |
| No. years stayed in school | | | | | | |
| Less than or equal to 6 years | 36 | 64.29 | 27 | 51.92 | 63 | 58.33 |
| 7-10 years | 15 | 26.79 | 21 | 40.38 | 36 | 33.33 |
| 11-14 years | 4 | 7.14 | 4 | 7.69 | 8 | 7.41 |
| More than 15 years | 1 | 1.79 | | 0.00 | 1 | 0.93 |
| Total | 56 | 100 | 52 | 100 | 108 | 100 |
| Household size | | | | | | |
| 1 – 3 members | 16 | 28.57 | 23 | 44.23 | 39 | 36.11 |
| 4-6 members | 27 | 48.21 | 24 | 46.15 | 51 | 47.22 |
| 7-9 members | 9 | 16.07 | 5 | 9.62 | 14 | 12.96 |
| More than 10 members | 4 | 7.14 | | 0.00 | 4 | 3.70 |
| Total | 56 | 100 | 52 | 100 | 108 | 100 |
| Household dependency | | | | | | |
| 0% | 3 | 5.36 | 9 | 17.31 | 12 | 11.11 |
| Less than or equal to25% | 1 | 1.79 | 2 | 3.85 | 3 | 2.78 |
| 26 - 50% | 10 | 17.86 | 9 | 17.31 | 19 | 17.59 |
| 51 - 75% | 4 | 7.14 | 7 | 13.46 | 11 | 10.19 |
| 76 - 100% | 17 | 30.36 | 13 | 25.00 | 30 | 27.78 |
| More than 101% | 21 | 37.50 | 12 | 23.08 | 33 | 30.56 |
| Total | 56 | 100 | 52 | 100 | 108 | 100 |

| Variables | YISEDA | | MUDSA | | TOTAL | |
|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % |
| Female headed households | | | | | | |
| No | 34 | 60.71 | 26 | 50.00 | 60 | 55.56 |
| Yes | 22 | 39.29 | 26 | 50.00 | 48 | 44.44 |
| Total | 56 | 100 | 52 | 100 | 108 | 100 |
| Household had elementary graduate | | | | | | |
| No | 26 | 46.43 | 26 | 50.00 | 52 | 48.15 |
| Yes | 30 | 53.57 | 26 | 50.00 | 56 | 51.85 |
| Total | 56 | 100 | 52 | 100 | 108 | 100 |

respondents (30.36%) are less than 25% dependent on farming. In general for both sites, at least more than 40% of the respondents are sourcing more than 50% of their income from farming. About 68% of the respondents have 1 parcel of farm land, 50% of YISEDA and 87% of MUDSA members (Figure 5-b). In terms of total farm area, majority (50%) of the respondents have 0.25 to1.50 hectare of farm land (Figure 6). There are only about 7 individuals owning more than 6.0 hectares of farm land in both sites. These are the business-inclined and well-off members of the organization into coconut industry, from farm production, processing into copra and charcoal, and marketing.

Annual farm income ranges from less than PhP10,000.00 to more than PhP 200,000.00 (Figure 7-a ). More than half of all the respondents are earning a meager amount of less than or equal to PhP 10,000.00 ($217) from farming. Additional income from other sources averages to less than or equal to PhP 50,000.00 for more than 50% of all the respondents (Figure 7-b). Combining the income derived from farming and other sources, majority of the respondents have total annual household income less than PhP 50,000.00 ($1,087) (Figure 8-a). To be able to cope during climate-related events such as drought/El Niñoo and typhoon and to make income sufficient to the needs of the family, majority of the respondents have other income sources such as hired labor in the road construction project or other labor-related work, in other farmer's lot during planting and harvesting season of crops, buy and sell of agricultural crops, livestock production and others (Figure 8-b).

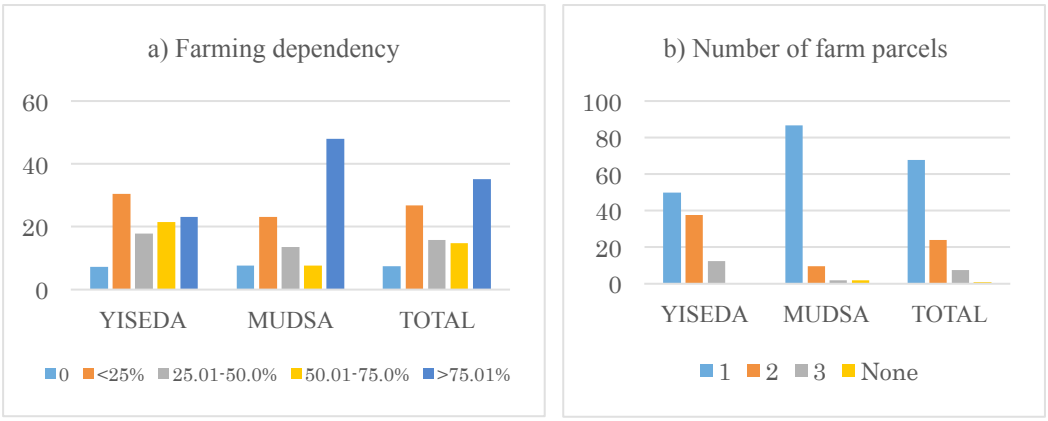



Figure 5. Farming dependency (a) and number of farm parcels (b) of YISEDA and MUDSA respondents.

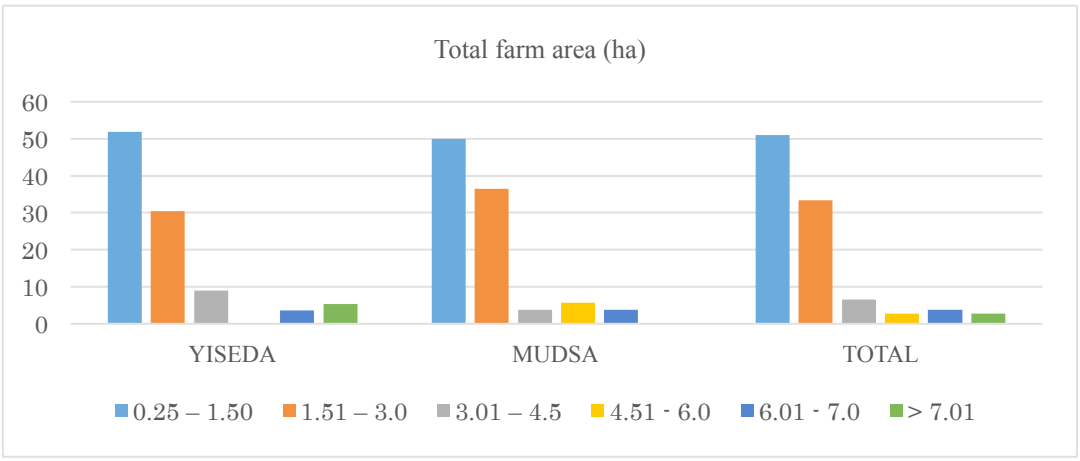



Figure 6. Total farm area owned by YISEDA and MUDSA respondents.

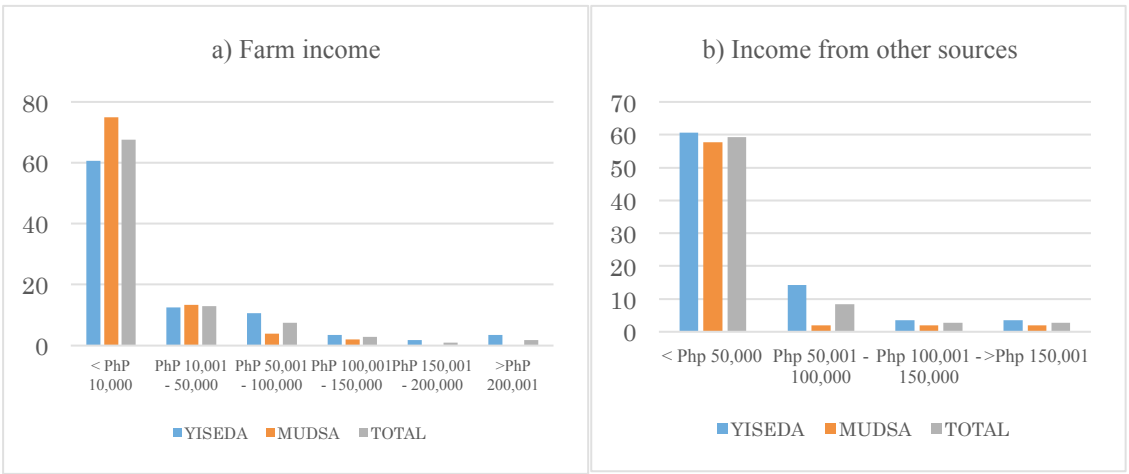
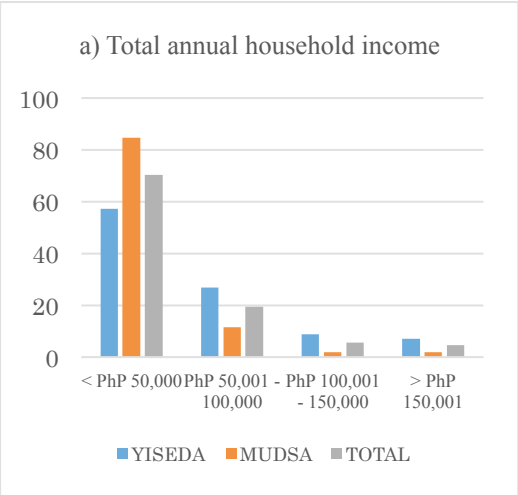



Figure 7. Income of respondents from a) farming and b) other sources.



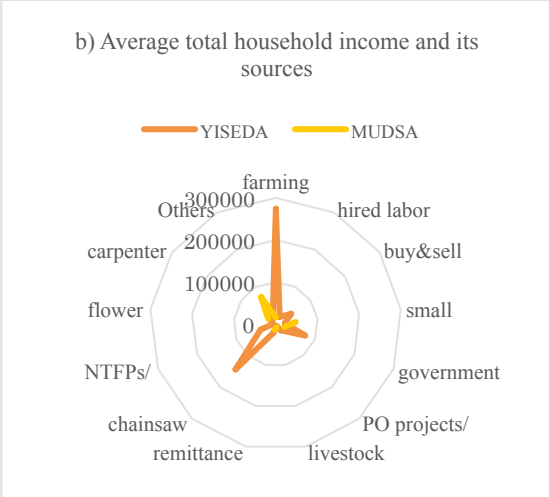




Figure 8. Total annual household income (a) and average total household income and its sources (b) of YISEDA and MUDSA.

### 4.3.2 Impacts of CBFM on the livelihood capital assets

The impacts of CBFM on the five livelihood capital assets, namely, human, natural, financial, physical and social, were determined at the community level based on the outcomes of the household survey, FGD, KII and field observation.

#### *4.3.2.1 Human capital*

Three human capital variables were used to determine the impacts of CBFM. These are education (forma; and informal) and health that enable households to successfully pursue livelihood objectives. The education variable refers to both formal and informal education as a contribution of CBFM to the household. Health variable refers to facilities available to be accessed by households.

##### 4.3.2.1.1 Education

The average impact of CBFM on education for both CBFM-POs is in Table 4. The impacts of CBFM on YISEDAs education significantly improved with an average score of 4.68, and is highly significant, while for MUDSA education level significantly decreased (-0.62). Table 2 shows a comparison of scores between the two periods, T1 – before CBFM and T2 – during CBFM implementation.

Looking at the average score for both sites, a 4.45 score before CBFM moderately describes the

condition of education for both sites (Table 5). Meanwhile a positive score of 6.42 was calculated as the average level of improvement in the education of the households during CBFM. The variation of means between these periods is significantly different. The slight improvement was attributed to the projects from DENR, GIZ, LGUs and other institutions. Continuous interactions with different institutions providing assistance to CBFMs enabled members to acquire knowledge and skills from trainings and seminars. The same is true for YISEDA, a high score of 7.95 during CBFM implementation is indicative that member's and its household's educational knowledge positively improved. Added to this, the income derived from forestry development project activities benefited the family, hence, able to send children to school that increase the number of educated people in each household.

Before CBFM, YISEDAs education is very low (2.98) which improved during CBFM implementation (7.95) (Table 5). The variation of the means between the periods is highly significant. Meanwhile for MUDSA, the before condition is higher (6.04) than during CBFM (4.77), which means that there was a

Table 4. Level of impacts of CBFM on human capital asset.

| Human Capital | YISEDA | | | MUDSA | | | Both | | |
|---|---|---|---|---|---|---|---|---|---|
| | Mean | Obs. | Sig | Mean | Obs. | Sig | Mean | Obs. | Sig |
| Education | 4.68 | 56 | *** | -0.62 | 52 | * | 1.96 | 108 | *** |
| Health and sanitation | 3.96 | 56 | *** | -1.92 | 52 | ns | 2.32 | 108 | *** |

Table 5. Result of the two-tailed t-test on the human capital asset of YISEDA and MUDSA between two periods.

| Human Capital | **YISEDA** | | | | **MUDSA** | | | | **Both** | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | T1 | T2 | Obs. | Sig | T1 | T2 | Obs. | Sig | T1 | T2 | Obs. | Sig |
| Education | 2.98 | 7.95 | 56 | *** | 6.04 | 4.77 | 52 | *** | 4.45 | 6.42 | 108 | *** |
| Health and sanitation | 2.98 | 7.54 | 56 | *** | 4.35 | 4.21 | 52 | ns | 3.61 | 5.94 | 108 | *** |

*Note: T1- before CBFM; T2 – during CBFM, T3 – during REDD+*

decline in the education condition of the area. For YISEDA, although income was said to be moderately

fair before CBFM due to high demand for abaca where plantations abound the community landscape, children's education is not a priority among community members. Majority of the students only reached elementary level. A small percentage of students pursued secondary level and about 1-2 students continue tertiary level as distance of the school from the community matters because secondary and tertiary are located in the city. Meanwhile the score for MUDSA is different from YISEDA. Before CBFM, MUDSA households gave moderate score. Education is given importance and children were sent to school until high school level. The proximity of the primary and secondary schools to the community also indicates access to the educational system. But during CBFM, education level declined. Formal education of children have been continuously pursued. The trainings and seminars that supposed to provide additional knowledge and skills to members dwindled. Although there are a couple of trainings and seminars conducted, members believe that it is not enough to improve their livelihood.

Most of the skills learned and/or developed by members are attributed to their participation in CBFMPO projects. In general, CBFM-POs have been recipients of numerous trainings and seminars on forest and natural resources conservation and sustainable development based on the idea that these activities would contribute towards sustainability of the resources.

4.3.2.2 Health and sanitation

The networking capability developed by PO member with CBFM implementation helped improve the health and sanitation conditions of its households. Good linking capability with the LGUs were used to source money in undertaking the "feeding program" that benefitted the undernourished children in the community. The average impact of CBFM on health conditions for both sites is significantly very low (2.32). The values generated are consistent for YISEDA and MUDSA. YISEDAs low score of 3.96 is significantly different. Members believe that majority of the improvement in health facilities is provided by the LGUs. The majority (46.55%) of the respondents depended on local health clinics before CBFM implementation, while with CBFM about 67.24% of the respondents go to a nearby hospital to seek for health remedies. Meanwhile, MUDSAs negative score -1.92 is not significantly different within group. Nevertheless, this still means that CBFM did nothing to contribute to the improvement of health facilities in the community.

**4.3.2.2 Natural capital**

The wealth of natural resources found in the area comprises the over-all natural capital assets (Plates

1-a & b). These resources include both quality and quantity of the land, farming systems/practices, forests, NTFPs, wildlife resources, water resources used for irrigation and domestic consumption, where change on these resources can be measured. Likewise, the amount of traditionally harvested resources, access and control over these resources were considered important variables to pursue livelihood sustainability.

#### 4.3.2.2.1 Over-all condition of the resources

Using the ladder diagram approach, the impacts of CBFM on the over-all condition of the resources such as farmland, forest, water, etc., amount of traditionally harvested resources, access and control over the resources were determined in two periods, before (T1) and during (T2) CBFM implementation. A comparison on the variation between the two periods for YISEDA and MUSA was presented in Table 6. For YISEDA, there was a highly significant increase in the over-all condition of the resources during CBFM implementation. Before CBFM (T1) respondents narrated that the resources were in deteriorated condition. The forest landscape is covered by patches of trees and major part of the area is open and denuded due to the *kaingin* making, timber poaching and charcoal making that thrived in both areas and form part of the major livelihood source of most households in the community. Added to this worsening condition was the occurrence of forest fires during the 9-month long drought or El Niño phenomenon experienced in 1982/1983. The quality and quantity of the resources improved with CBFM due to the application of farm and forest management practices derived from the knowledge gained from trainings/seminars. The application of organic farming, contour farming and agroforestry system increased farm production due to diversity of agricultural products and food crops. The impact of the initiative trickled to forest areas affecting the practice of shifting cultivation (*kaingin*). The establishment of CBFM in the community discontinued the practice of *kaingin*, at least for YISEDA members. Also, YISEDA officers and members actively advocated for the prohibition of *kaingin* in the entire barangay of Lunas. Hence, a Barangay Ordinance prohibiting kaingin making (slash-and-burn agriculture) was issued in 2010. Pure stands of abaca (*Musa textilis*) dominated the forest landscape before and during CBFM implementation. The introduction of sustainable agroforestry system gradually replaced abaca plantations. Not until 2006, the apparent infestation of “bunchy top” disease wiped all abaca plantations in Southern Leyte. The drastic change in abaca farming led non-members of YISEDA to embrace the promotion of agroforestry farming. Agroforestry include the planting of agricultural crops with timber and fruit trees. YISEDA have been very active in sourcing development

projects allowing for the continuous conduct of reforestation, rehabilitation, and establishment of timber plantations adding to a more vegetated forest landscape.

Surprisingly for MUDSA, there was a highly significant decline in the over-all condition of the resources during the CBFM implementation (Table 6). Respondents attribute the decline to the abusive nature of human behavior to the environment. Although, there is no record to support the claim of respondents on the decline of the resources particularly of forest resources, the variation of perception between the two periods is statistically significant. MUDSA members attributed the decline to the absence of income sources of the landless poor who are involved in the illegal cutting/ harvesting in the area. Unlike YISEDA, MUDSA is not performing well in the implementation of its projects. The monitoring activities of MUDSA is very weak, hence, not able to apprehend actual violators on-site. MUDSAs implementation of the National Greening Program funded by DENR in the previous years was considered a failure based from DENR standards with a survival rate of 80%. Over-all, MUDSA is no match to the aggressiveness of YISEDA in implementing development projects and the desire to contribute to enhancing the forest cover of the CBFM area.The resultant difference of the rating between the two periods refers to the impacts attributable to CBFM. CBFM attribution is made clear during the household survey. Table 2 shows the general impact of CBFM, which refers to the difference between T1 and T2. The resultant value refers to the impact of CBFM on the over-all condition of the resource. Generally, over-all condition of the resources will improve with CBFM implementation as most areas under CBFM are in denuded state. For 27 years of ISFP/CBFM implementation in both sites, natural resources is expected to improve. YISEDA stood with the ideals of CBFM and able to revegetate the once denuded forest landscape. It seems that MUDSA moved three (3) steps backwards in re-vegetating its forest areas. Rather than improving the condition of the forest, CBFM may have triggered to further its abuse. The *de-facto* forest manager's reference to community member under CBFM have a different connotation for MUDSA that led to the abuse of its resources.

#### 4.3.2.2.2 Amount of traditionally harvested resources

Farming inside the forestland is a major livelihood strategy of upland communities. The collection of forest resources such as timber, non-timber forest products, wildlife, and others forms part of the income generation options of the community. The establishment of CBFM in the both areas had a considerable impact on the quantity of farm and forest products traditionally harvested that constitute their livelihood.

Both sites experienced a highly significant decline in the amount of traditionally harvested resources (Table 6 and 7). There was an over-all highly significant decline of -3 and -1 in YISEDA and MUDSA, respectively (Table 7). In Southern Leyte farms especially in the uplands are dominated by abaca, while coconut farming is also very common due to less maintenance cost. Before CBFM, illegal timber poaching/ extraction and *kaingin making* form part of the livelihood sources in both sites. However, the implementation of CBFM prohibited timber extraction without the necessary resource use permit (RUP). The timber plantations established in CBFM areas can be harvested at maturity provided RUP is secured before conduct of actual harvesting.

Before CBFM, the resources and products in the forest areas are considered free that can be accessed by everybody. Hence, YISEDA respondents rated this variable an average of 7.18 before CBFM and 4.18 during CBFM (Table 6). Sustainable forest management is the goal desired for CBFM communities. The CBFM contract provided that members should adhere to the principle of sustainable management. YISEDA management have been very strict in terms of members' adherence to the moral values of environmental conservation. The vicinity of the CBFM area and member's farms are regularly monitored to check for policy violation. Also, cited for the decline is the amount of harvested abaca fiber infested by the "bungee top" disease in 2006. The barangay ordinance on *kaingin* making ban add up to the decline of resources harvested.

Table 6. Result of two-tailed t-test of the natural capital assets using ladder diagram approach between two periods

| Natural Capital | YISEDA | | | | MUDSA | | | |
|---|---|---|---|---|---|---|---|---|
| | T1 | T2 | Obs. | Sig | T1 | T2 | Obs. | Sig |
| Over-all condition of the resources | 2.35 | 6.81 | 52 | *** | 7.27 | 3.29 | 52 | *** |
| Amount of traditionally harvested resources | 7.18 | 4.18 | 49 | *** | 6.21 | 5.14 | 43 | *** |
| Access to resources | 7.00 | 4.18 | 49 | *** | 5.71 | 5.42 | 48 | NS |
| Control over resources | 5.70 | 3.50 | 50 | *** | 5.81 | 5.57 | 47 | NS |

Table 7. Over-all CBFM impacts on natural capital assets of YISEDA and MUDSA.

| Natural Capital | YISEDA | | | MUDSA | | |
|---|---|---|---|---|---|---|
| | Mean | Obs. | Sig | Mean | Obs. | Sig |
| Over-all condition of the resource (land, water, etc.) | 4 | 56 | *** | -3 | 52 | *** |
| Amount of traditionally harvested resources | -3 | 56 | *** | -1 | 52 | *** |

| | | | | | | |
|---|---|---|---|---|---|---|
| Access to resources | -2 | 56 | *** | 0 | 52 | NS |
| Control over resources | -2 | 56 | *** | 0 | 52 | NS |

MUDSA equally share the same highly significant trend for the harvested resources, a decline of -1 (Table 7) from 6.21 (T1) to 5.14 (T2) (Table 1). The devastating impacts of climate variability and extremes such as drought/El Nino phenomenon and typhoons on farmer's crops led to the decrease in production and harvest. The 2014 forest fires affected planted timber of the organization. The human abuse on the natural resources in the area is one key factor for the decline according to majority of the respondents. This is consistent with the decline in the over-all condition of the resources. MUDSA members seldom conduct monitoring activities, hence, not able to regulate illegal forest activities of members and non-members alike. The very low condition of the over-all resources added to the already vulnerable state of the forest areas.

During the FDG, representatives of the POs and local institutions/organizations believed that enhancing the over-all condition of the forest resources is CBFMs most important contribution to its members and the society. This is further strengthened by YISEDAs strong information, education campaign (IEC) on NTFPs, forests, water and wildlife sustainability. Continued supply of resources such as NTFPs, water, land, and timber is brought by a healthy and rich forest landscape that also attracted wildlife species like birds, monkeys and owls. However, the richness of biodiversity is threatened by continued collection and gathering of the resources found in CBFM. The continued supply and collection of NTFPs is proof for the availability of supply for the cottage industry particularly for basket-making and seedling/vegetable containers.

#### 4.3.2.2.3 Access to resources

Access to resources refers to the freedom to use the available resources either for economic or household use. The success of CBFM does not only rely on the number of trees planted, but most importantly how the planted trees and other resources within the CBFM can be accessed by its members. In reality, among the barriers of CBFM implementation is limitation in accessing the resources.

Both sites experienced a decline in access to resources, the impact for YISEDA is highly significant with an average of -2 while for MUDSA is 0 and is not significant (Table 7). The natural resources in the Philippine forest lands are easily accessed by communities within or nearby its boundaries.

YISEDA and MUDSA share the privilege of accessing the resources freely even for illegal logging/poaching purposes, the reason both gave a higher score before CBFM implementation. The visibility of the forest agency in the past is very limited and in most cases absent on-site, hence, free access to resources resulted to forest degradation. The condition change during CBFM especially for YISEDAs strict compliance to the prohibition of illegal forest activities including illegal poaching, kaingin making, charcoal making, etc. Timber extraction became case-specific, a permission from the organization is required for household construction/repair purposes with the number of trees to be cut while approved RUP is required for commercial purposes. Access to forest land, timber, and NTFPs also decline with CBFM due to continuous collection and gathering beyond the system's capacity for replenishment (Table 8).

On the other hand, farm land resources are accessed freely by respondents even during CBFM implementation. CBFM members in both sites practiced *kaingin* making inside forest lands in the past. These members were automatically considered to become a member of CBFM during its establishment. Hence, majority of the respondents acquired farm ownership through CSC and CBFM (Figure 9). Members who inherited their ownership of farm land replaced the old, sick and deceased members particularly for MUDSA. It is also worth mentioning that the additional 64 members in YISEDA were recruited for purposes of the UDP program of the DENR, hence, considered as associate members who are now tilling the area they planted under the program. In general, the contribution of CBFM to farm land ownership in YISEDA is very high while high for MUDSA (Figure 10). The granting of CSC in 1989 is a very important document that recognizes their right (as a holder) over the land they cultivate.

Table 8. Result of two-tailed ttest of the natural capital assets between three periods

| Natural capital asset | YISEDA | | | | MUDSA | | | |
|---|---|---|---|---|---|---|---|---|
| | Obs. | T1 | T2 | Sig | Obs. | T1 | T2 | Sig |
| Number farm parcel | 56 | 1.50 | 1.57 | NS | 52 | 1.17 | 1.12 | NS |
| Total farm area (ha) | 56 | 2.26 | 2.27 | NS | 52 | 2.02 | 1.97 | NS |
| Total species diversity | 56 | 6.16 | 8.55 | *** | 52 | 5.69 | 2.42 | *** |
| Species diversity per hectare | 56 | 6.37 | 1.50 | *** | 52 | 3.85 | 1.04 | *** |
| Forest land access* | 36 | 3.72 | 3.11 | ** | 42 | 4.67 | 2.07 | *** |
| Timber access* | 35 | 3.74 | 2.62 | *** | 45 | 4.44 | 1.98 | **** |
| NTFPs access* | 5 | 4.00 | 1.80 | ** | 46 | 4.59 | 2.80 | *** |

**uses likert scale: 1-very low, 2- low, 3- moderate, 4- high, 5- very high*

There is no improvement on the number of farm parcels cultivated for YISEDA (2) and MUDSA (1) before and during CBFM, the variation of means between periods is not significant (Table 8). The same not statistically significant no improvement is true for total farm area for both sites. Some YISEDA members raised the issue of reduction in cultivated area during CBFM, especially distant farmlands converted purposely for reforestation, forest rehabilitation and timber plantation (Peras et al, 2015). In terms of species diversity in farmlands, YISEDA reported highly significant positive increase in species diversity while significantly decreased in MUDSA between periods. Improvement in species diversity is explained by the promotion of agroforestry through planting a combination of cash crops, food crops, fruits and forest trees.

Water resources is freely accessed by majority of the respondents through natural springs and community-installed water faucets (Fig. 11). Before CBFM the only source of water for domestic/household use and farm water is the nearby natural spring, while most farms are rainfed. During CBFM community-installed water faucets are strategically placed along the road system in Bgy. Lunas especially in Sitio Canlugoc where majority of YISEDA members reside. Its installation may not be fully contributed by CBFM but the empowered YISEDA leaders facilitate the installation of these faucets.

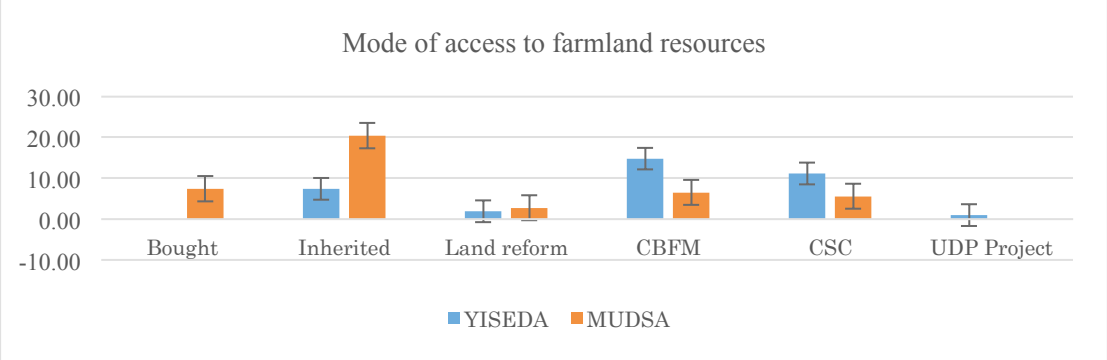



Figure 9. Mode of access to farmland resources in YISEDA and MUDSA.

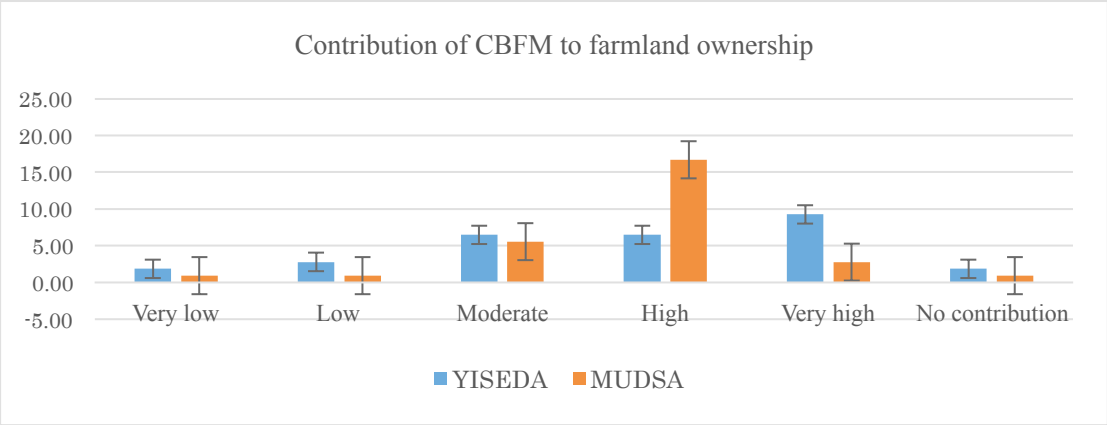



Figure 10. Contribution of CBFM to farmland ownership in YISEDA and MUDSA.

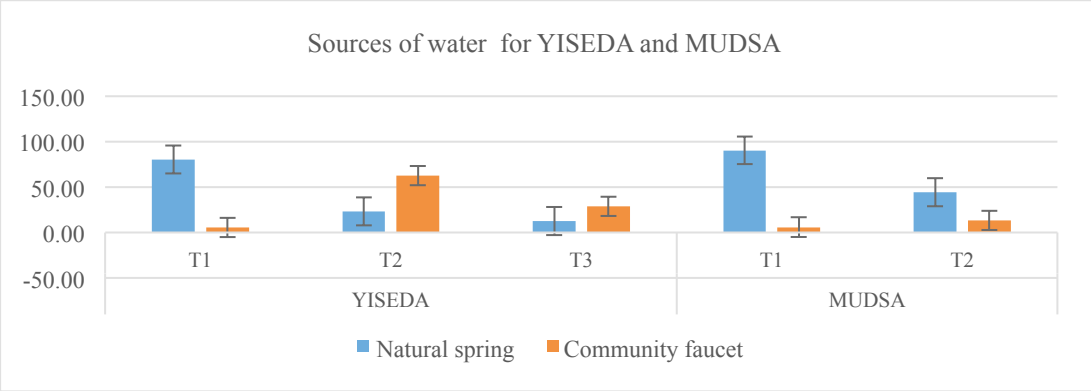



Figure 11. Sources of water for YISEDA and MUDSA.

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4.3.2.2.4 Control over resources

Control over the resources pertains to the overall management of the resources found within the CBFM area. The power of the national government agency such as DENR in securing State ownership over forest lands is a good example of control. More specifically, CBFMA enhanced government's control over local communities by limiting devolution to responsibilities on forest development and protection (Pulhin *et. al*., 2007). Individual farmer's control over their farmlands located inside CBFM areas diminished when they subjected their area under DENR control in the guise of CBFM-PO management. This is consistent with the decline of score for this indicator in both sites. Upland farmers were once considered culprit of forest destruction due to the practice of destructive farming system. Farmers are fully aware that ownership of the public (forest) land reside with the State but they are entitled to their private rights over this land. Hence, before CBFM individual farmers in both sites

believed that they had sole and full control over their farmlands in forest areas by giving a score of 5.70 and 5.81 for YISEDA and MUDSA, respectively (Table 7). DENR's visibility in forest lands was obscure until the launching of people-oriented forestry projects such as ISFP in 1982 and later on the CBFM in 1995. While CBFM purports to develop people organizations as forest stewards and partners in forest development, over all control over the CBFM area seemingly lies with the DENR. The highly significant decline of YISEDAs score during CBFM (3.50) indicates that control over resources is not basically shared but rather a manifestation of government control even to the supposed management of the POs. YISEDA tagged to be a good performing PO feared that freedom over the resources can be hindered by too restrictive State regulations and policies. On the other hand, MUDSAs score barely change between the 2 periods and the variation is not significant. Respondents believed that DENR control is somewhat evident in the projects initiated in the area. MUDSAs failure to comply with the NGP targets and the continuous deterioration of natural resources may somehow mean that control still lies with the PO. Over-all, the impact of CBFM on this indicator is highly significant at -2 for YISEDA while not statistically significant for MUDSA at 0.

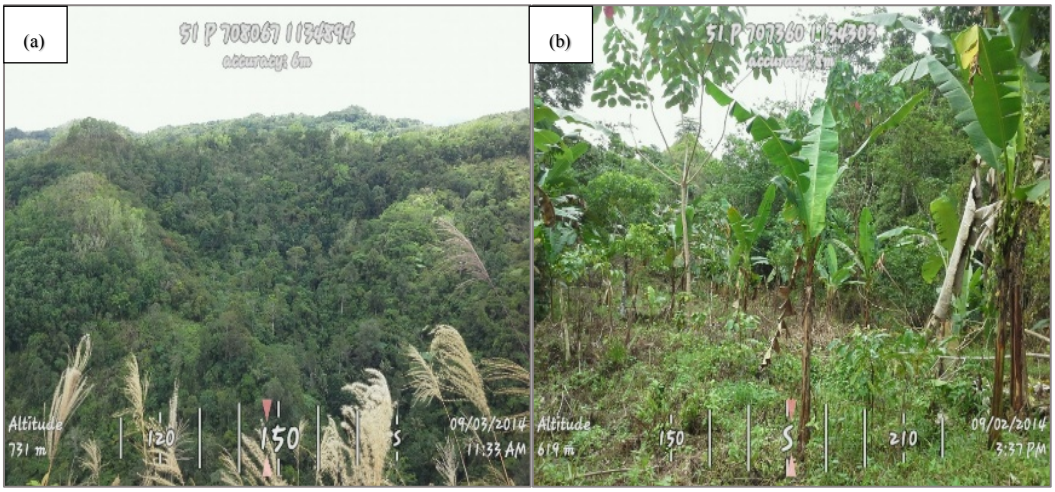


Plate 1. Photos showing some of the natural capital assets of the CBFM, (a) reforestation area and (b) communal agroforestry.

#### 4.3.2.3 Physical capital

Physical capital is composed of assets put up by the households like shelter (houses/buildings), household assets (mobile phones, entertainment system, furniture, appliances, transportation and machineries). Accessibility to the physical capital assets established by the community such as roads

and transport system, communication facilities and markets are important consideration in pursuing livelihood objectives. Physical development is triggered by the presence of CBFM projects thru CBFM-POs supported by the national government, NGOs and international agencies. CBFM intends to improve the living condition of the upland poor by making physical facilities available to them. Though there is indirect connection between the two, the CBFM-POs attributed such development to the existence of national projects in their area.

4.3.2.3.1 Household-level assets

Household physical assets consist of ownership of housing/dwelling unit, lighting and household facilities. The security of shelter/housing among members from both organizations through house ownership is one of the basic necessities in life. House ownership increased during CBFM in YISEDA (Fig. 12). This is attributed to the construction of new houses for the families of single members who got married. The type of houses varies between members from minimal (use of light materials like bamboo, nipa shingles, etc.) to high (concrete and GI roof) use of construction materials.

The minimal housing materials dominate the majority of houses in YISEDA before that improved to low type combining light materials with wood/lumber (Fig. 13). Although lumber can be sourced from individual farm lots, its collection is well monitored by the organization. MUDSA members on the other hand have a much improved housing type, from a majority of minimal and light type of housing in the past to a medium type where wood is combined with concrete walls and flooring. Income sourced from CBFM activities have a meager contribution in enhancing member's houses. A major factor for the improvement could be triggered by the climate-related damages to housing.

Lighting sources also reflects improvement in the household. In the past, majority of the upland communities in Southern Leyte including YISEDA and MUDSA are using kerosene and coconut oil (Figure 14). However during CBFM, lighting using electricity gradually increased. This improvement is partly attributed to CBFM as LGUs and other local institutions aside from POs claimed that electricity as a major development is a project of the government. Facilitation of the improvement could be enhanced by the presence of CBFM project like in YISEDA frequented by foreign and local visitors alike for its forest management and collective action success stories.

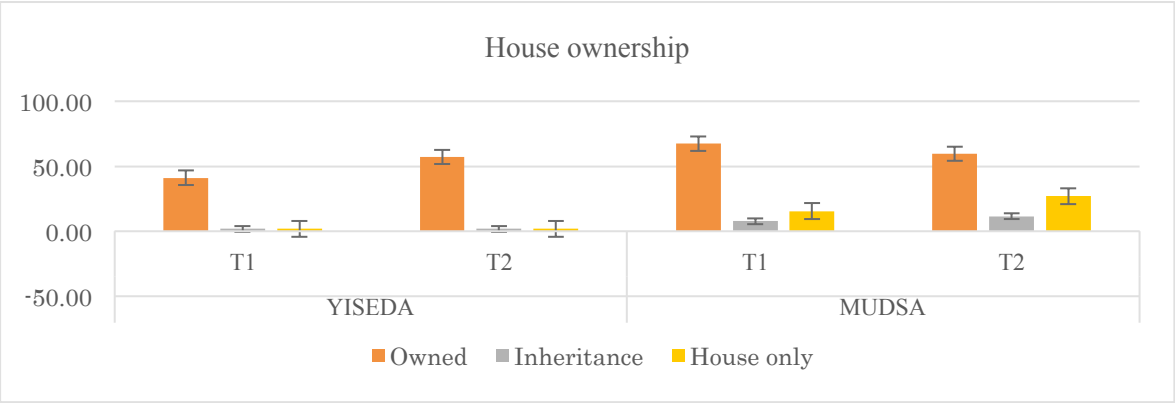


Figure 12. Type of house ownership of YISEDA and MUDSA respondents.

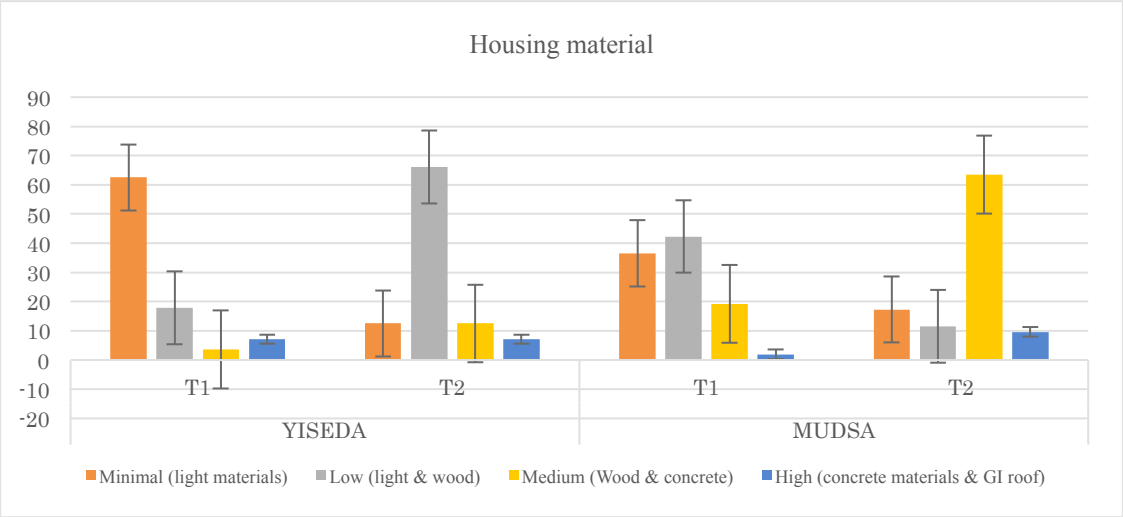


Figure 13. Housing materials used in the YISEDA and MUDSA houses.

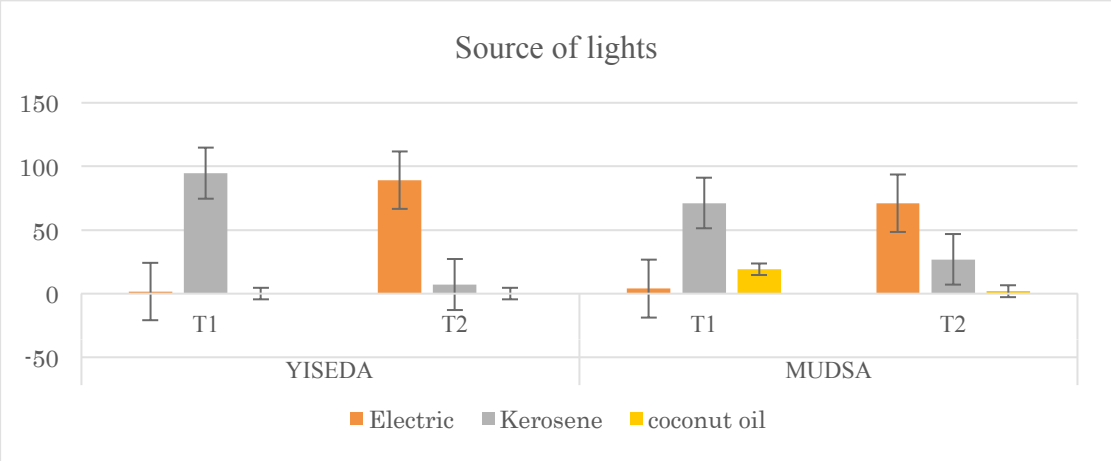


Figure 14. Source of lighting for YISEDA and MUDSA.

A collection of household facilities/assets also implies improvement in the context of the Philippines. The tendency to buy appliances and other assets is common among Filipinos even for upland communities nowadays. The accumulation of assets go along with the increase in income. When calamity struck these assets could also be disposed to buy for household's needs. Asset accumulation is evident during CBFM as income from different forestry development projects is beginning to manifest in both sites (Fig. 15). The majority of the respondents from YISEDA and MUDSA have furniture, entertainment system and mobile phones. A higher percentage of MUDSA respondents have more appliances than YISEDA. The entertainment system before CBFM were mainly composed of radio that improved to television set during CBFM. Majority of the furniture reported by respondents refer to dining set, cabinet and sala set. Motorcycles/motorbikes are also owned by respondents used by some members to earn income for "*habal-habal*" driving. Machineries constitute old and dilapidated abaca machines especially before CBFM and chainsaws used and rented out during timber harvesting operation.

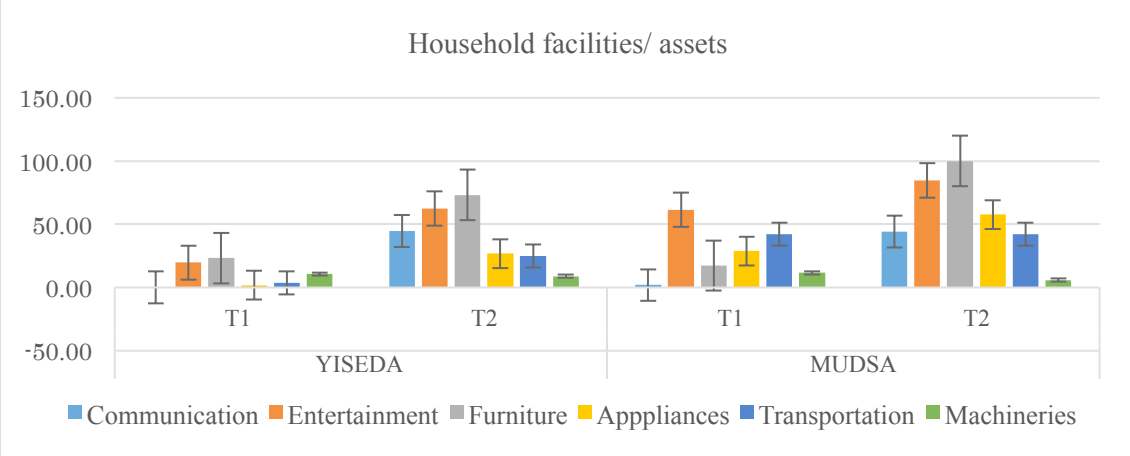


Figure 15. YISEDA and MUDSA ownership of household assets and facilities.

4.3.2.3.2 Organization's physical assets

Earning CBFM POs are also making efforts to invest in some physical assets beneficial to the operation of the organization. After more than 2 decades of nurturing the timber planted in 1990s, YISEDA underwent its first harvesting operation in 2012. The harvesting did not went well and only led to break-even income situation. Nevertheless, the meager amount of income derived and the unsold logs were used by the organization to build the multi-purpose hall, sari-sari store and stock yard and invest in the mini-sawmill (Plate 2- a, b, c, and d). The multipurpose hall is used to accommodate meetings and gatherings of the organization as well as earn income from the rooms rented by visitors

staying for a couple of days in the area. Although some members were disappointed with the infrastructure investment, the long-term benefit has become the priority of the majority of members.

#### 4.3.2.3.3 Community infrastructures

Table 9 presents a comparison on the condition of the physical infrastructures in the community before and during CBFM. This enabled the PO members to pursue their livelihoods as infrastructure development is on-going. All the different infrastructures in both YISEDA and MUDSA before the implementation of CBFM was in a very poor condition. The road system is already established but the road is very rough and muddy during rainy season dangerous for motorbikes (*habal-habal*) as the only means of transportation system. Aside from motorbikes, carabaos and horses also transport people and products. There was no means of communication aside from the postal services and telegrams. Markets, located in the center of the municipality is 20 kms away from YISEDA, are not accessible before CBFM. All these assets significantly increased during CBFM, members claimed the indirect association of these assets to CBFM implementation particularly for YISEDA.


Plate 2. Photos showing stock yard that houses (a) mini-sawmill and (b) sari-sari store of the organization and the (c) multi-purpose hall with attach (d) dormitory.

CBFM projects located in remote areas in the uplands gave way for the community's physical development. The acknowledgement of YISEDAs aggressive and excellent performance during and after project implementation made it more popular to funding agencies such as GIZ and the national government as well. Foreign national's frequent visitation in the area led the LGUs at different levels to align their

Table 9. Result of the two-tailed ttest on the comparison of perception of physical capital condition of YISEDA and MUDSA in two periods.

| Physical Capital | YISEDA | | | | MUDSA | | | |
|---|---|---|---|---|---|---|---|---|
| | T1* | T2* | Obs. | Sig. | T1* | T2* | Obs. | Sig. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Road access | 1.55 | 3.89 | 55 | *** | 1.46 | 3.71 | 52 | *** |
| Transport facilities | 1.47 | 4.20 | 55 | *** | 1.50 | 4.10 | 52 | *** |
| Communication facilities | 1.25 | 3.93 | 55 | *** | 1.63 | 4.06 | 52 | *** |
| Markets | 1.37 | 4.26 | 54 | *** | 1.44 | 4.13 | 52 | *** |

* used likert scale 1-5, 1-very difficult, 2- difficult, 3- moderate, 4- easy, 5- very easy

development initiatives towards Bgy. Lunas side where YISEDA is located. However, during the FGD representatives of the government institutions reiterated that physical improvements were part of the comprehensive development initiated and funded by the LGUs, particularly by the Mayor, with the aim to make road system accessible to all. The case of MUDSA is different since it covers 3 barangays, Bgys. Mahayahay and Lambonao are much accessible to the center of the municipality, around 10-15 minutes of travel time of flat lands. The distant barangay, Bgy. Caraatan, is _8kms away from the center of the municipality and traverses Biliran river a couple of times. Transport system like *habal-habal* is readily accessible for Bgys. Lambonao and Mahayahay, while absent in Bgy. Caraatan. Road system in MUDSA is still rough, while road construction (concreting) is on-going in YISEDA. The road system passing Bgy. Lunas connects Maasin City to other municipalities in the uplands going to the capital city of Region 8, which is Tacloban City. This road system is an alternate route to Tacloban City. Over-all, the community's infrastructure have positively and significantly improved in both sites (Table 10).

YISEDA members regarded the improvement in roads and transport system as contributions of the CBFM implementation. The CBFM area is frequented by foreigners and researchers especially for the administration and monitoring of projects implemented. If the area is not under the CBFM program, YISEDA members believed that visitors would not bother going to the site due to its inaccessibility.

#### *4.3.2.4 Financial capital*

Financial capital is defined as the financial resources that people use to achieve their livelihood objectives such as available stocks (savings both cash and bank deposits and liquid assets), credit facilities, and inflows of money (DFID, 2001). The financial resources considered in this study include income sourced from farming and other livelihood sources and available credit facilities.

Table 10. Impacts of CBFM on the physical capital assets of the community.

| Physical Capital | YISEDA | | | MUDSA | | |
|---|---|---|---|---|---|---|
| | CBFM | Obs. | Sig. | CBFM | Obs. | Sig. |
| Road access | 2.36 | 55 | *** | 2.25 | 52 | *** |
| Transport facilities | 2.73 | 55 | *** | 2.60 | 52 | *** |
| Communication facilities | 2.67 | 55 | *** | 2.42 | 52 | *** |
| Markets | 2.84 | 55 | *** | 2.69 | 52 | *** |

4.3.2.4.1 Income and its sources

The diversity of income sources enable people to derive more cash income and improve their condition to pursue their livelihood objectives. Farming is the major income source of respondents in both sites. Coconut, abaca and agricultural crops constitute the major crops planted. Before CBFM until 2006, the high market demand for abaca fiber is well recognized among farmers placing it to be the most important crop. Coconut is the second best crop due to the many uses that can be derived from the tree (Plate 3-a, b, and c).

Aside from farming a number of livelihood sources are also employed by respondents. Income diversification becomes a necessity for farmers especially if crop production fail during climate variability and extremes. Farmers need income adaptation options for the family. Among the other sources of income employed include serving for hired labor in construction areas, farming activities and even organization projects and programs (seedling production, plantation establishment, reforestation and rehabilitation); livestock production and dispersal; buy and sell of agricultural products particularly banana, coconut, fruits and others; government employee (local barangay officials); direct selling (Avon products); chainsaw operator, fuelwood collection, coconut charcoal making, illegal logging/poaching; abaca fiber extraction for sinamay making (handicraft products); non-timber forest products (NTFPs) collection; remittance; rending paid services (manicurist, driver, plumber, maid, janitor, etc.). Even support coming from government such as the Pantawid ng Pamilyang Pilipino Program (4Ps) and Phil health pension. During CBFM, on the average YISEDA income sources slightly increased to 2 but the difference is not statistically significant. Meanwhile for MUDSA, the two income sources before and during CBFM did not change, yet the variation is highly significant.


Plate 3. Picture showing a) piles of coconut ready for pick-up of Buyer and transport, b) on-site (farm) traditional copra making, and c) off-site (constructed/improvised oven) copra making.

Although the main source of income is still farming, but they are able to diversify their planted crops through agroforestry. Unlike in the past when most farmers were into destructive livelihood activities, the positive change in the sources of income is attributed to the learnings and trainings provided under the CBFM program.

Before CBFM, abaca farming is claimed by majority of the respondents as the most important crop. A higher percentage of income from farming was derived from abaca (Fig. 16). The annual average income before CBFM for YISEDA was Php 32,853.09 that significantly declined to around 60% during CBFM with Php 19,919.84 (see Table 11). A major part of this decline was attributed by members on the infestation of abaca in 2006 and prohibition of illegal logging/poaching due to the strict implementation of forest policies. In addition, farmlands of some members have been planted with mahogany (*Swietenia macrophylla)*, narra (*Pterocarpus indicus)*, falcata *(Albizzia falcataria)*, gmelina*(Gmelina arborea)* and others under the reforestation and rehabilitation activities of the organization. The forest transformation of the denuded landscape has somewhat led to the gradual decline in the cash income of members (Mohammed *et al*., 2016). The realization on the negative impact of natural capital transformation on farming and income when agricultural production was obstructed by the growing tree canopy. On the contrary, MUDSAs average annual farm income

increased significantly to about 50% during CBFM, from Php 9,028.02 to Php 18,001.54. Unlike YISEDA, MUDSAs farming is not abaca-dependent, coconut is the most important crop which over the years have an increasing market price, hence, farm income increased.

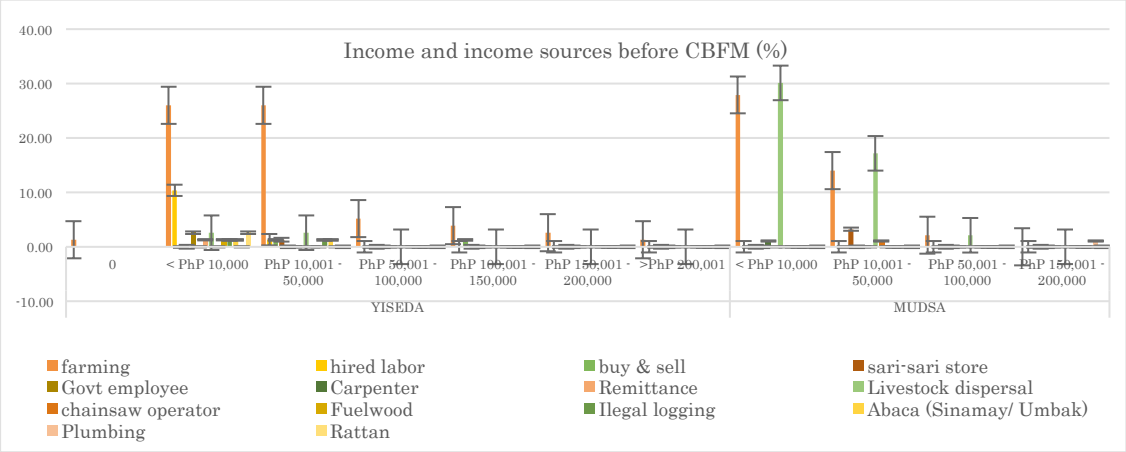


Figure 16. Income and its sources before CBFM for YISEDA and MUDSA.

Meanwhile, the average annual income from other sources increased to 32% and as high as 90% for MUDSA and YISEDA, respectively, but the variation is not statistically significant in both sites (Table 11). The introduction of other/alternative livelihood sources during CBFM were used to supplement farm income as farming is highly vulnerable to climate-related phenomenon. The consistency of increased cash income from a diversity of sources employed proves that it can help improve household's livelihood options and conditions. Unfortunately, the short-lived nature of these initiatives, not sustained after project termination, failed the expectation of the members and wasted CBFM investment.


Plate 4. Photos showing a) traditional-manual extraction of Abaca fiber, b) Amakan making, and c) seedling production under the National Greening Program of the DENR in MUDSA.

Total income refers to the combination of cash income derived from different sources, i.e. farming and other sources. YISEDAs average annual total income declined during CBFM, a similar trend with farm income, however, the variation is not statistically significant. MUDSAs total annual income significantly increased during CBFM implementation. Farm income constitutes the major bulk of the total income for both sites, hence, follows the same trend before and during CBFM implementation.

In general, the impact of CBFM on financial capital is negative and positive for YISEDA and MUDSA, respectively (Table 12). YISEDAs farm and total income decreased to about Php 12,9333 and Php 7,542, respectively. MUDSA on the other hand, increased farm income to Php 8,973.52, other sources to Php 3, 593.10 and total income to Php 12,566.62. The dramatic change in farming practices and conversion of land to suit the requirement of the organization were claimed by some respondents on the decline of income during CBFM. Strict forest protection activities especially of YISEDA limits the collection ground of illegal poachers. The emergence of other income sources with CBFM diversifies members' options.

Table 11. Result of the two-tailed t-test on income comparison of YISEDA and MUDSA between two (2) periods.

| Financial capital | YISEDA | | | | MUDSA | | | |
|---|---|---|---|---|---|---|---|---|
| | T1 | T2 | Obs. | Sig. | T1 | T2 | Obs. | Sig. |
| Income diversity | 1 | 2 | 56 | ns | 2 | 2 | 52 | *** |
| Income from farming | PhP 32,853.09 | PhP 19,919.84 | 56 | ** | PhP 9,028.02 | PhP 18,001.54 | 52 | *** |
| Other income sources | PhP 59,54.11 | PhP 11,345.16 | 56 | ns | PhP 11,083.56 | PhP 14,676.65 | 52 | ns |
| Total income | PhP 38,807.20 | PhP 31,265.00 | 56 | ns | PhP 20,111.58 | PhP 32,678.19 | 52 | ** |
| Local income* | 5.98 | 5.37 | 51 | ns | 5.31 | 4.90 | 52 | ns |

*rated using the ladder scale of 1-10 steps

Table 12. Result of t-test on the impacts of CBFM on the income of YISEDA and MUDSA.

| Financial capital | YISEDA | | | MUDSA | | |
|---|---|---|---|---|---|---|
| | CBFM | Obs. | Sig. | CBFM | Obs. | Sig. |
| Income diversity | 0.18 | 56 | ns | 0.54 | 52 | *** |
| Income from farming (PhP) | (-) PhP 12,933 | 56 | ** | PhP 8,973.52 | 52 | *** |
| Income from other sources (PhP) | (-) PhP 5,391 | 56 | ns | PhP 3,593.10 | 52 | ns |
| Total income (PhP) | (-) PhP 7,542 | 56 | ns | PhP 12,566.62 | 52 | ** |

#### 4.3.2.4.2 Credit facilities

Available and accessible credit facilities are important for people towards pursuing their livelihood goals. Figure 17 presents the percentage of respondents who availed of credit facilities in each period. Before CBFM, 44% of YISEDA members availed of loans, while 57% of MUDSA members are not. During CBFM there is a slight increase (53%) in the number of YISEDA members who availed of credit facilities. About 38% of MUDSAs members availed of loans.

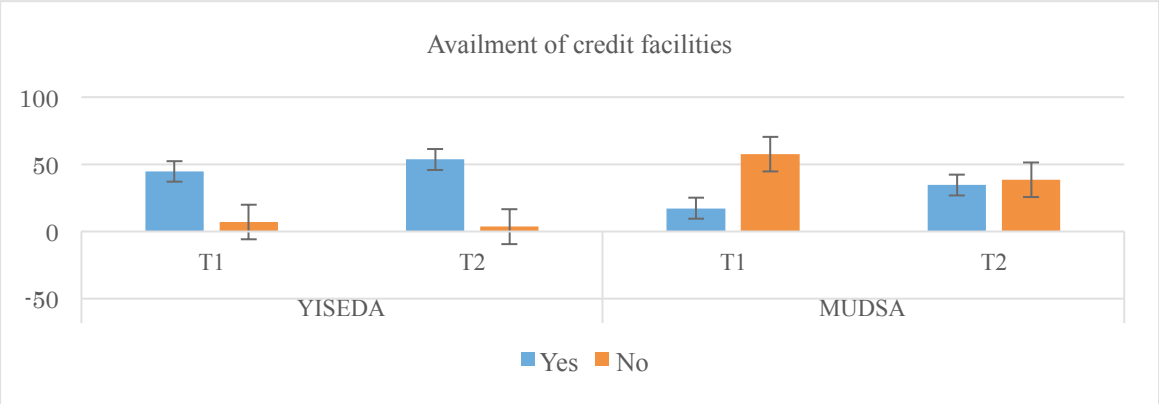


Figure 17. Percentage of respondents who availed of credit facilities.

The most common reason people availed of credit/loans is to augment the needs of the family like children's education, house repair, capital for farming, small business investment, festival celebration, and even pay other loans. Credit facilities available are small business (sari-sari store), micro-lending facilities, buyer of abaca and coconut, relatives, LGU, cooperatives and government security and insurance system (GSIS)/ social security system (SSS) (Fig. 18). Before CBFM, the most sought lending facilities for YISEDA come from the buyer of abaca, micro-credit, and small businesses, while MUDSA had LGU, buyer of coconut and abaca, and micro-credit. During CBFM, although not necessarily brought about by CBFM, the growing number of micro-credit facilities is well accepted in both sites.


Figure 18. Credit facilities available in YISEDA and MUDSA.

On the other hand, credit facility offered by YISEDA through its lending program component is threatened by the repayment system of the members themselves. Revenue shares generated from timber harvesting have not been realized with their first harvesting done in 2012. YISEDA did not earn much from their timber harvesting operation. The minimal income derived was decided to be used in the construction of their training center cum hostel that will accommodate guests that frequented their community such as researchers (local and foreigners), NGOs, government personnel and local community from other areas and derive income from this as well.

#### *4.3.2.5 Social capital*

The formal and informal social relationships (or social resources) acquired from opportunities and benefits are the social capital assets used to achieve livelihoods objectives (DFID 2001). Social capital constitutes of networks and connections (patronage, neighborhoods, kinship), relations of trust and mutual understanding and support, formal and informal groups, shared values and behaviors, common rules and sanctions, collective representation, mechanisms for participation in decision-making, and leadership. This study covered the three (3) social capital classifications of bonding, linking and bridging emphasizing the aspect of trust, reciprocity and cohesiveness (Table 13). In the same manner, strengthened social capital assets provide for the ability to participate in community meetings, ability to influence community affairs, reduces community conflict and strict compliance to forest management policies.

##### 4.3.2.5.1 Bonding

Bonding social capital refers to the relations of members with their organization. For YISEDA, the

level of trust among members and cohesiveness of the organization slightly increased with CBFM, the variation between periods is significant and not significant, respectively. Reciprocity on the other hand significantly declined with CBFM. MUDSAs level of trust slightly declined, while reciprocity and cohesiveness slightly increased, the variation between periods (T1 and T2) is not statistically significant among these bonding variables. In the past, members from both organizations claimed that people had high regard and respect for everyone in the community. Trust building in any organization is very important to ensure a good working relationship between members especially during CBFM implementation as narrated by some respondents. While the declining trust among members of the organization relates to presence of conflicts especially transparency issues. Reciprocity refers to the practice of exchanging something for mutual benefits. The decline in reciprocity may imply that mutual benefits that is supposed to be derived is missing, where only one group/person benefit in the process. Security of benefits to be derived from the exchange has become a priority. YISEDA allows members to seek loan from the organization only if they render hired labor services in any of the organization's on-going activities where there is the assurance of payment. Cohesiveness pertains to the unity of members in the organization, where members share the same goals and objectives of CBFM, hence, will work towards the achievement of their goals. Family relations have become closer where CBFM encourages others to be involved through the labor opportunities available in the project area. All members of the PO agree that their local mutual support mechanism have improved due to avoidance of conflict escalation as individuals in the organization learned to adjust to one another.

#### 4.3.2.5.2 Bridging

The horizontal networks and relationships of YISEDA and MUDSA among other similarly oriented organizations is known as the bridging capital asset. Other CBFM people organizations which the 2 organizations have relations are considered in this study. The bridging social capital for both sites shows highly significant variations between periods among the 3 variables. All the bridging social capital indicators of trust, reciprocity and cohesiveness significantly increased with CBFM for both YISEDA and MUDSA. YISEDAs networking ability with other CBFM-POs improved with CBFM implementation. The good performance of YISEDA in forestry project development have been the example of local DENR personnel for imitation by other POs. Hence, the assistance of YISEDA was sought by other CBFM-POs to complete the target reforestation activity. The level of trust between POs improved, both are more trusting in terms of relations with other POs because they share the common

objectives and interests. Hence, in order to experience the success of YISEDA, sharing success stories among CBFM-POs is

Table 13. Comparison of the social capital indicators of YISEDA and MUDSA in different periods.

| Social Capital | YISEDA | | | | MUDSA | | | |
|---|---|---|---|---|---|---|---|---|
| | T1 | T2 | Obs. | Sig | T1 | T2 | Obs. | Sig |
| **Bonding** | | | | | | | | |
| 1. Trust | 6.21 | 6.82 | 38 | * | 7.46 | 7.27 | 52 | ns |
| 2. Reciprocity | 8.17 | 5.44 | 36 | *** | 6.79 | 7.02 | 52 | ns |
| 3. Cohesiveness | 7.00 | 7.24 | 29 | ns | 7.15 | 7.42 | 52 | ns |
| **Bridging** | | | | | | | | |
| 1. Trust | 0.86 | 3.94 | 35 | *** | 1.15 | 3.67 | 33 | *** |
| 2. Reciprocity | 1.20 | 6.30 | 30 | *** | 1.20 | 7.15 | 20 | *** |
| 3. Cohesiveness | 1.23 | 4.03 | 31 | *** | 1.20 | 3.55 | 20 | *** |
| **Linking** | | | | | | | | |
| 1. Trust | 0.86 | 6.78 | 36 | *** | 1.53 | 5.35 | 49 | *** |
| 2. Reciprocity | 1.36 | 6.70 | 44 | *** | 1.13 | 6.79 | 38 | *** |
| 3. Cohesiveness | 1.47 | 6.86 | 51 | *** | 0.83 | 6.77 | 52 | *** |
| Participate in community affairs | 4.40 | 6.29 | 42 | *** | 4.69 | 5.67 | 52 | *** |
| Ability to influence community affairs | 3.60 | 6.18 | 40 | *** | 4.59 | 5.05 | 49 | * |
| Resource management compliance | 3.66 | 6.82 | 50 | *** | 4.82 | 5.57 | 49 | * |

important to encourage higher motivation to pursue sustainable forest management objectives of CBFM. MUDSAs willingness to learn from other's experience is indicative alignment of goals with CBFM.

4.3.2.5.3 Linking

Linking is the vertical networks and relationships among other similarly oriented organizations and also refers to the capacity of the organization to leverage their resources. Trainings and seminars not only improved knowledge on forest conservation technologies but most importantly promoted collaboration outside of the organization. Networking skills and good relationship with DENR (CENRO, PENRO and Regional Office), LGUs (Barangay, Municipal, and Provincial), Department of Agriculture (DA), Department of Education (DepEd) and Department of Health (DOH) improved during CBFM implementation according to respondents in both sites. Civil society relationship improved with

YISEDA with support provision from NGOs such as GIZ, Heifer International and Rural Development Initiatives (RDI). MUDSA on the other hands, is dependent on DENR-initiated projects. Improvement of trust, reciprocity and cohesiveness of the linking social capital is highly significant for both sites (Table 1). The energetic and proactive leader of YISEDA for 10 years link YISEDA to NGOs for funding their development activities especially in developing farm lands for agroforestry system and in greening their CBFM area. The presence of NGOs and other agencies supportive of YISEDA's ideals boost the organization more to undertake different activities such as preparation of livelihood proposals. YISEDA members build their trust not only with co-members but also to the community as a whole. The *bayanihan* system practiced and promoted by YISEDA members have likewise improved their collective action.

MUDSA on the other hand had recently underwent a re-organization initiated by DENR-PENRO as problems arise due to the declining social capital asset of the organization to its members. Majority of the members aired their disappointment with their leader for issues concerning transparency and equity of govenance. Linking social capital is actually missing for MUDSA. No other forestry development projects have been established in the area other than DENR and LGU funded. Empowerment concept have not been instilled among members. No one is willing to take the leadership role aside from its President for 10 years.

4.3.2.5.4 Others

4.3.2.5.4.1 Participation in community affairs

One of the most improved indicator of CBFM implementation is the ability of members to participate in community affairs such as assemblies, community meetings, trainings, seminars, workshops and other activities. The ability of members to participate in the affairs of the community significantly increased with CBFM in both sites (Table 1). The improvement is attributed to the continued conduct of trainings, seminars, and IEC (information, education campaign) intended to capacitate members to become forest stewards. Also, frequent attendance to seminars and trainings enable members to be open-minded and more educated on matters affecting their households. Henceforth, ensure the attendance of the head of the household in community affairs. In cases where the household head cannot attend meetings, the spouse would normally represent her husband.

4.3.2.5.4.2 Ability to influence community affairs

The empowered CBFM communities have made significant strides in influencing decision making processes at least at the local level. Both YISEDA and MUDSAs ability to influence community affairs increased with CBFM (Tabel 1). The variation between the 2 periods is highly significant for YISEDA and significant for MUDSA. In the desire to encourage every member of the community to share environmental protection responsibility influencing policy making at the barangay level is important. This is particularly true for YISEDA, least 2-3 members were voted by community members to the Barangay Councilor position. Barangay ordinances relating to the environment such as ban on kaingin making and illegal logging/poaching were legislated.


Plate 5. Photo showing YISEDAs partnership with NGO (FOBI) in funding fruit tree plantation.

4.3.2.5.4.3 Compliance with resource management

The over-all management of the forest resources demands compliance by local stakeholders, most especially forest- dependent communities. Increased compliance with resource management is highly significant among YISEDA respondents while significant for MUDSA. The complacence behavior of members towards forest policies in the past was attributed to the non-visibility of DENR officials to monitor their area and ignorance of the law. The trainings/seminars on environmental protection and constant reminders on punishment for illegal forest activities changed complacence behavior. Hence, with CBFM compliance of members to resource management increase and the fear of imprisonment is evident among YISEDA members. YISEDA's compliance to sustainable forest management is reflected in the numerous awards they received such as the Best Performing CBFM-PO in 2012. However, YISEDA's faithfulness was tested with the 3 cases of illegal timber harvesting activities discovered in 2015.

In general, the impacts of CBFM on the social capital indicators are positive and highly significant for both sites (Table 14). Although, YISEDA is showing more progress in forest management, the aggressiveness is gradually declining. This decline is attributed mainly to the change in leadership, new leaders not able to follow the footsteps of their predecessor in sourcing projects that will continue the activities of the organization. In the same manner, MUDSA respondent's positive perception on social capital contribution of CBFM is attributed to the empowerment of some members.

Table 14. Impacts of CBFM on social capital assets of YISEDA and MUDSA.

| Social Capital | YISEDA | | | MUDSA | | |
|---|---|---|---|---|---|---|
| | **Mean** | **Obs.** | **Sig** | **Mean** | **Obs.** | **Sig** |
| **Bonding** | | | | | | |
| 1. Trust | 1 | 56 | *** | 0 | 52 | ns |
| 2. Reciprocity | -1 | 56 | ns | 1 | 52 | *** |
| 3. Cohesiveness | 2 | 56 | *** | 1 | 52 | *** |
| **Bridging** | | | | | | |
| 1. Trust | 2 | 56 | *** | 2 | 52 | *** |
| 2. Reciprocity | 3 | 56 | *** | 3 | 52 | *** |
| 3. Cohesiveness | 2 | 56 | *** | 1 | 52 | *** |
| **Linking** | | | | | | |
| 1. Trust | 5 | 56 | *** | 4 | 52 | *** |
| 2. Reciprocity | 6 | 56 | *** | 6 | 52 | *** |
| 3. Cohesiveness | 5 | 56 | *** | 6 | 52 | *** |
| Others | | | | | | |
| ability to participate in community affairs | 1 | 56 | *** | 1 | 52 | *** |
| ability to influence community affairs | 2 | 56 | *** | 0 | 52 | * |
| community conflict | -2 | 56 | *** | 1 | 52 | *** |
| compliance with resource management | 3 | 56 | *** | 1 | 52 | * |

### *4.6 Discussion*

#### *4.6.1 The convergence and divergence of local stakeholders' perception*

##### *4.6.1.1 Between YISEDA and MUDSA*

In general, CBFM has indeed improved the livelihood capitals of both organizations except financial capital. Meanwhile, the natural capital asset of YISEDA particularly the condition of forest resources is challenged by the negative decline in the access, control and amount of traditionally harvested resources. Both CBFM-POs have an over-all negative decline for natural capital. However, the over-all condition of resources in MUDSA deteriorated from its condition before CBFM. Members attribute the decline to the continued human abuses and impacts of climate variability and extremes. The minimal vegetation of the forest landscape of MUDSA makes it more vulnerable to the occurrence of forest fires. Also, access and control of resources did not change during CBFM. This means that even during CBFM there was a higher tendency that members of MUDSA and the community are still into illegal forestry-related activities. The human and financial capital assets of MUDSA did not improve with CBFM. Health and education facilities is lacking especially for the Bgy. Caraatan, upland community. There is only 1 elementary and day care school present in the barangay. No health facilities exist since CBFMs establishment in the area. The nearest health facility to this barangay is 8 kms. away traversing the Biliran river.

The divergence of perspectives of both CBFM-POs on livelihood capitals is indicative of their different experiences. YISEDA is too restrictive to its members ensuring the government authorities that members follow forest policies. YISEDA is closely monitoring members' economic activities that maybe of threat to the forest sustainability. Hence, there is physical evidence of the CBFMs contribution to enhancing the natural capital asset of the area. However, the declining natural capitals of MUDSA brought by human abuse of the environment is attributed to the absence of sustainable income sources of landless poor, not a member of the organization. Added to this is the very weak monitoring activities administered by MUDSA. Accordingly, members were able to apprehend some forest violators with chainsaws. But the irregularity of MUDSAs monitoring activities, mentioned during the FGD, led some violators to continue their illegal activities.

#### *4.6.1.2 Between CBFM-POs and local institutions*

The local institutions which include the DENR at CENRO, PENRO and Regional Office; LGUs from the barangay, municipality and province; and GIZ also determined the impacts of CBFM on the livelihood capital assets. Although, the local institutions scored positive impacts of CBFM, some of the perspectives deviate from the POs (Figure 19). The differing perspective of stakeholders on the impacts of CBFM is well recognized and considered important in harmonizing efforts toward addressing the problems that may arise from them. Convergence refers to the commonality of perception of groups, while divergence refers to the difference in the perception of the groups. A summary of the convergence and divergence of perspectives between the 2 groups is presented in Table 15.

Table 15. Comparison of average ratings of local stakeholders on the impacts of CBFM on livelihood capitals.

| Livelihood Capitals | CBFM-POs (YISEDA and MUDSA) | | Other Local institutions (LGUs, DENR, GIZ) |
|---|---|---|---|
| | FGD | Survey | |
| Human | +2 | +2 | +1 |
| Natural | +2 | -1 | +2 |
| Physical | +1 | +2 | +2 |
| Financial | +1 | 0 | +2 |
| Social | +2 | +2 | +2 |

Note: +2 strong positive change, +1 weak positive change, 0 – no change, -1 weak negative change

CBFM is generally viewed strong positive and weak positive by members of CBFM-POs and local institutions as regards the livelihood assets of members, respectively. The improvements in the community cannot be solely attributed to CBFM alone because there are improvements like community infrastructure attributed to LGUs initiatives. The trainings / seminars during CBFM enable members to gain knowledge on improving farm productivity by employing agroforestry technologies, organic farming and others. The diversity of agricultural crops promoted in agroforestry have not only conserve soil and water but also increase farm productivity. YISEDA members protected and conserved the natural capital assets like forest resources, NTFPs, wildlife, etc. . The forest landscape has been transformed to a greener vegetation under agroforestry and timber plantation from originally dominated abaca plantation

and *kaingin* areas. Reverting back the forest landscape is possible with CBFM due to the diversification of farm lots and income sources of farmers. However, the income gained from the diversity of sources do not match with forest destructive-related income sources. Hence, increasing the financial capital assets of the local community and households is still considered the major challenge of CBFM implementation. According to both stakeholders, increasing cash income can be done by making income sources financially lucrative over forest destruction-related activities. Membership to the CBFM-PO served as a form of mutual support mechanism of members. The sense of unity has been developed in the local community which is positively considered by both stakeholders. CBFM-POs empowerment through the continued information and education campaign widens their knowledge base.

YISEDA members rated the indicators such as shelter, building and productive assets with weak positive impact. The linkage established by YISEDA with other organizations and institutions through the trainings, seminars and workshops that they have undergone served as means of empowering the members of YISEDA as well as the organization in general. Both YISEDA members and representative from local institutions believed that CBFM project is also vital in the establishment of building infrastructure in the area such as YISEDA's Multi-Purpose Hall, mini-sawmill and stock yard. The multipurpose hall does not only accommodate members during meetings and gatherings but also served as an earning asset where visitors who wish to stay can rent the dorm-type rooms beside the Multi-Purpose Hall. The capital to build this hall was generated entirely from the income derived from YISEDA's first timber harvesting operation. The PO members agreed to invest the income from timber harvesting on the constructions of a multi-purpose hall rather than divide the amount among themselves. Moreover, timber harvesting is limited only to what is specified in the resource use plan and permit (RUP) of YISEDA, hence, local community cannot just cut trees for building their houses. It will still have to undergo the process stipulated under the CBFMA contract as well as the national policy on EO 232. Productive assets cannot be solely identified with CBFM implementation because other improvements or assistance provided to them were not associated with CBFM, hence only a weak positive rating given. Local organizations/institutions also believed that irrigation systems cannot be attributed to CBFM as these are initiatives of the LGUs and other government organizations.

Local institutions perceptions diverge with CBFM-POs on education, technical skills and health. Local institutions' rating considers the application of learning from school or trainings. It is not enough that children attained some degree of education if they cannot find good job opportunities after graduation.

Skill competitiveness is a major determining factor for landing a good job in the city. There is a need to further improve health facilities, though access-wise is already considered. There is an increasing demand on handicraft industry utilizing NTFP (rattan) raw materials such as basket weaving in YISEDA, but its supply is threatened by the unsustainability of the resource brought about by the destructive nature of its collection. During the start of the study, road development is one of the physical structures that have to be improved by the LGUs The construction of road system was underway three (3) years ago. At present, the concrete road system already reached So. Canlugoc (YISEDA). This development happened even without the projects in the CBFM area as claimed by majority of YISEDA members. Hence, the community's physical development is attributed mainly to the initiative of the LGUs and the national government. Although, CBFM could have partly facilitated this development in the process due to the diversity of CBFM visitors that frequented YISEDA in the past years.

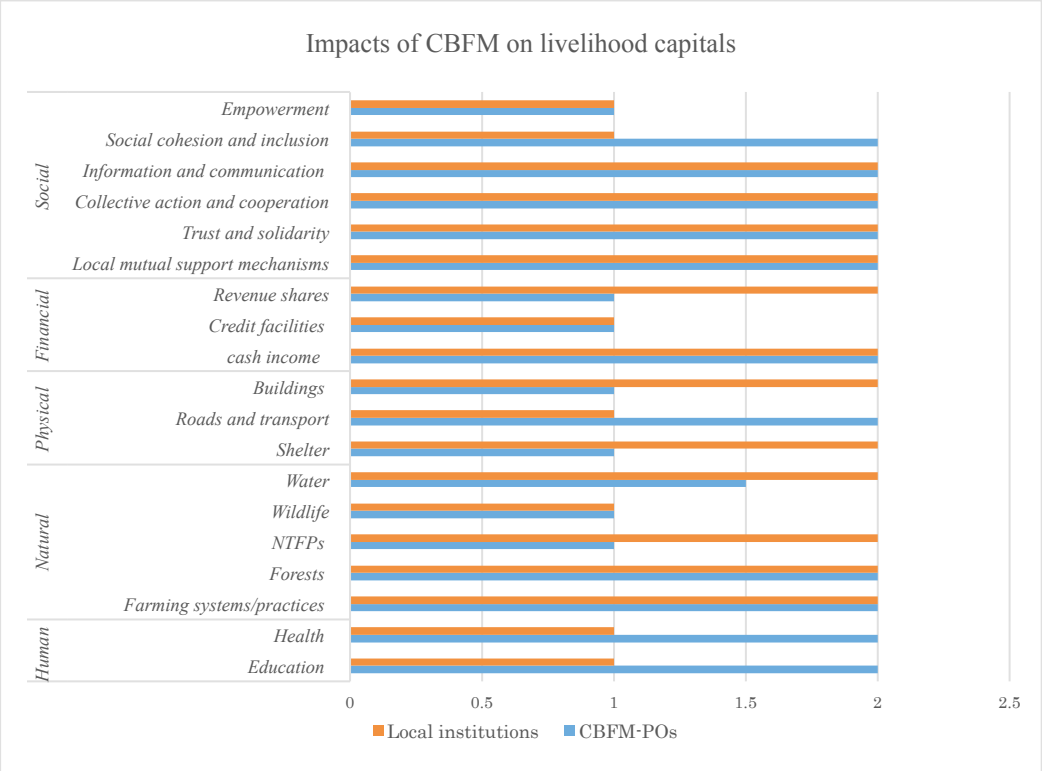


Figure 19. Convergence and divergence of local stakeholder's perspectives on the impacts of CBFM on livelihood capitals

*Note: +2 – strong positive change, +1 – weak positive change*

The convergence of perspectives implies that both groups of stakeholders believed CBFM have

greatly influenced the improvement in the farming practice, health condition of forest resources and wildlife; cash, credit facilities, market, mutual support mechanisms, trust, collective action, information and communication and empowerment. These indicators are within the scope of the role and responsibility of the parties involved in CBFM, such as PO and DENR. The key towards achievement of CBFMs success lies on its set of leaders and the commitment of its members in complying with the organization's programs and activities. YISEDA has been fortunate for the technical and financial assistance accorded to them by the DENR and GIZ. However, majority of the CBFM areas in the country such as MUDSA do not have the luxury of having dynamic leadership, regular and continuous assistance from DENR and funding institutions, both technical and financial.

### 4.7 Conclusion and Policy Implications

The past three (3) decades saw the development of CBFM in the management of forest resources in the country. Along with the evolution is the rapid change in forest policy environment espousing the most recent global issues of climate change and biodiversity conservation. CBFM implementation caters to the different objectives of the forestry sector by implementing development projects funded by international organizations.

Aside from addressing the twin problem of forest degradation and upland poverty, CBFM is seen as Improvement on the livelihood capital assets of the community and households where CBFM was implemented is expected to overwhelm its critiques. The impacts of CBFM in member's households and the community as well was analyzed using the sustainable livelihood framework. A combination of quantitative and qualitative data collection methods was employed. The ladder scale approach was also instrumental in determining the level of impacts of CBFM between two periods, i.e. before and during CBFM implementation.

Results of this chapter show that CBFM implementation contributes largely to building the livelihood capital assets of the members' households, but improving financial capital remains a challenge. The natural capitals of YISEDA particularly the once denuded forest landscape have been altered with CBFM implementation. The CBFM area is now teeming with trees as compared with the unproductive and denuded condition dominated by grassland before. To be able to maintain forest conservation efforts, strict implementation of forestry policies was accorded among its members which has led to the dissipation of access and control over the resources that eventually decreased the volume of traditionally harvested resources and income. Members are more conscious of their economic activities for it was closely monitored by YISEDA leadership. The social capital of the organization also improved as different forms of IEC materials have been provided to members in addition to attendance to trainings,

seminars and meetings. Although, positive impacts of CBFM is well acknowledged by members, the corresponding decrease in income due to the reduction of cultivated land area for agricultural crops in favor of the indigenous species of timber, alteration of traditional old destructive sources of income (kaingin making, charcoal making, poaching/ illegal timber harvesting, etc.) and non-availability of alternative sources of income, is a major disappointment for members. Members raised concern that their aggressiveness towards implementing forest conservation strategies should be compensated with sustainable sources of income.

MUDSA on the other hand, did not have the same impacts with YISEDA, only the physical and social capitals revealed positive improvements. CBFM did not contribute in enhancing the human capital assets of the members as seminars and trainings on livelihood and enterprise development have not materialize in the area. The education and health facilities remained the same with CBFM. The distant barangay Caraatan do not have any kind of health facility in the barangay at present. The natural capital asset particularly the condition of the forest, land and water resources declined with CBFM. The level of access, control of resources and the volume of traditionally harvested resources remained the same with before CBFM condition. Despite the efforts of the DENR to inculcate forest conservation and protection initiatives in the uplands, the case of MUDSA as presented is indicative that trainings/seminars on forest conservation are still lacking for it failed to communicate the importance of forest to people's livelihood.

YISEDAs CBFM implementation is different from MUDSA due to a number of reasons. YISEDA is more aggressive in sourcing funds and projects even during the first few years of CBFM implementation when projects from DENR is still minimal or worst lacking. YISEDA value "bayanihan" system to be binding in the past that encourage members to render services and be compensated when income of the organization is available. YISEDA have accepted the role and responsibility of forest managers/ stewards not only in the implementation of its projects but most importantly in complying with forest management and its corresponding policies. These reasons are not evident in MUDSA. The sense of unity as a people organization is doubtful maybe because the sense of belongingness to individual barangay is favored over the PO. There were also equity, transparency and accountability issues hindering members to work collaboratively. MUDSA also failed its implementation of the NGP project. The recent organizational strengthening administered by DENR PENRO CBFM coordinator is hope to revive the organization. Past issues have been discussed and addressed, and promised not to be repeated in its future discussion.

This chapter therefore concludes that CBFM can really contribute to enhancing the livelihood capitals of the organization, members and community. The degree of impacts, positively or negatively, will depend on the accountability of PO members to make a difference in their forest area. It is high time for the DENR to really assess the impacts of CBFM to local communities using the sustainable livelihood approach, not only when projects abound but most importantly when projects terminated.

This assessment will enable DENR to save good performing POs such as YISEDA from going back to its past destructive activities. The sustainability of livelihoods in CBFM is a two-pronged process involving the PO and the government. Forestry development projects infusion in CBFM areas is not enough if POs are not ready for the responsibility of being a forest steward. Enhancing forest governance at the site level is more fundamental to achieve success in CBFM areas.

## Chapter Five

### REDD+ and Its Effects:
### Sustainable livelihood, co-benefits and trade-offs, and social environmental safeguards


**Abstract**

The forestry sector in the developing world has been continuously challenged by the unsustainability of forest resources and the threat of climate change. Reducing Emissions from Forest Degradation and Deforestation (REDD+) was launched to address the problem, and the Philippines accepted the challenge by undergoing the 10-year phased process. Using the sustainable livelihoods framework, this chapter examines the challenges of REDD+ implementation in the Philippines using the case of Southern Leyte REDD+ pilot area and highlights the effects to sustainable livelihood, co-benefits and trade-offs and social and environmental safeguards. My findings suggest little to no contribution of REDD+ pilot project to sustainable livelihood. The pilot project focuses attention on forest carbon stock enhancement, benefiting natural capital formation. Access and control on forest resources diminishes but compliance to forest policy increases. The financial capital gains from project activities is short-lived and not sustained after project. While social, human and physical capitals are indirectly enhanced by REDD+. Also, there is a very high association of the natural and financial capital assets with REDD+ pilot project activities. The major drawback of REDD+ pilot project activities is that it perpetuates the failures of CBFM initiatives giving little attention to sustainable livelihood objectives. Forest conservation policy like REDD+ as a mechanism for addressing climate change can still be adopted by local communities if livelihood capital assets will be further enhanced.


### 5.1 Introduction

Pursuing the goal of sustainable development poses great challenge to most developing countries, especially in the context of climate change. Tropical deforestation and forest degradation in combination with rural poverty have likewise added to the continuing threat to forest sustainability and vulnerability to climate change impacts. Solutions to combat the impacts of climate change were made through incentivizing developing countries in managing and protecting their forests through REDD+ (otherwise known as reducing emission from deforestation and forest degradation) primarily to contribute to carbon emission reduction in the forestry sector.

IPCC (2014) refers to REDD+ as Reducing Emissions from Forest Degradation and Deforestation in the Developing Countries. The plus ('+') sign pertains to the sequestration of carbon through forest conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries (UNFCCC, 2010). REDD+ is an international mechanism framed through the international climate change negotiation that provides financial incentives for developing countries to reduce deforestation and forest degradation and protect their forests. This mechanism is a new framework that

will financially compensate countries willing to cut greenhouse gas (GHG) emissions. In 2010, the United Nations Framework Convention on Climate Change (UNFCCC) Conference of Party (COP) 16 adopted a decision in Cancun, Mexico, encouraging developing country parties to contribute to GHG mitigation actions in the forest sector by undertaking REDD+ activities. These include: reducing emissions from deforestation and forest degradation, conservation of forest carbon stocks, sustainable management of forests and enhancement of forest carbon stocks, as well as the principles and safeguards for REDD+. Part of the REDD+ activities is the development of national strategies or action plans, policies and measures, and capacity building; implementation of REDD+ country-specific strategies or action plans including technology development and transfer; and results-based demonstration activities that will evolve into results-based actions, which should be fully measured, reported and verified.

REDD+ is also envisaged to provide multiple benefits to local communities (Gunilla, Olsson & Quattara, 2013). These benefits are also referred to as "co-benefits" or other benefits derived out of the REDD+ project in addition to reduced emission. Among the REDD+ co-benefits are forest (biodiversity) conservation and the provision of more sustained income source for local communities once carbon trading progresses (Angelsen, 2009). Another benefit is the improvement of forest governance system, especially in developing countries known to have an overall poor governance index (Wertz-Kanounnikoff & Metta Kongphan-apirak, 2009). These potential positive (co-benefits) impacts have been enumerated by the supporters of REDD+ while critics highlight the potential negative impacts (trade-offs) to the marginalized local communities, including the indigenous peoples. Potential co-benefits include increases in employment through entrepreneurship development, diversification of income sources and access to markets, food crop production, and provision of ecosystem services as a result of ecosystem conservation and sustainable management. The adverse side effects, on the other hand, include employment decline as less labor intensive technologies in agriculture intensify, increased income concentration, declining local food production due to large-scale monocultures of non-food crops, and rise of land use competition (IPCC 2014).

Many scholars believe that REDD+ will have considerable implications on the livelihoods of local communities such as deprivation in resource requirement, displacement of traditional goat herders, risking existence of blacksmiths with tightened wood supply (Poudel, Thwaites, Race & Dahal, 2015); benefit sharing framework of uneven distribution (Howson & Kindon 2015); and reducing contribution to poverty alleviation by marginalizing and criminalizing the artisanal and small-scale mining sector (Hirons, 2011). On the contrary, parallel studies involving participatory forest management (PFM) such as community forestry (CF) and community-based forest management (CBFM) saw the direct link between resource conservation incentives and/or benefits to household's livelihoods (Karki, 2013; Nath & Inoue, 2010; Mohammed *et al*., 2016). Some went to suggest the small and medium forest enterprises (SMFEs) to further promote sustainable use and conservation of forests (Tomaselli and Hajjar, 2011). However, few studies link the different forest conservation activities such as REDD+ pilot demonstration

project activities to sustainable livelihoods.

In 2014, IPCC assessed the different potential co-benefits and adverse side effects of the different mitigation measures in the AFOLU sector on the economic, social, environmental and institutional objectives. Moreover, Le, Smith & Herbohn (2013) noted sustainable livelihoods as one of the key drivers to a successful reforestation project in the Philippines. Countries participating in REDD+ are expected to shift from high-carbon emission development pathways to forest carbon stocks enhancement actions for multiple benefits, including biodiversity, livelihood enhancement, water, climate change adaptation, and development (Minang & Noordwijk, 2014).

The Philippines accepted the challenge of REDD+ implementation. Even with only 0.32% share in the 2012 global greenhouse gas (GHG) emissions, the country has committed to 70% GHG emissions reduction by 2030 as reflected in its recent submission of Intended Nationally Determined Contributions (INDC) to the UNFCCC (Philippines INDC 2015). In 2010, even without support access to multilateral REDD+ mechanism, the Philippine National REDD+ Strategy (PNRPS) was developed and affirmed. (ADB, 2010). At the heart of PNRPS is the empowerment of forest managers especially indigenous peoples (IPs) in managing forestlands and ancestral domains sustainably and equitably with enhanced carbon stock and reduced green house gas (GHG) emission. REDD+ implementation in the Philippines is a three-phased approach spread in a span of 10 years (2010- 2020). This involves readiness, scaling-up and engagement phases. Currently, the country is still at the readiness stage which runs for 3-5 years. This comprises the majority of the strategies and activities identified in the PNRPS. Readiness phase capacitates the country before actual implementation or engagement of REDD+ schemes at the national level. Among the major activities are a) development of the PNRPS; b) capacity-building, consultation, communication, integration and reform; c) national level bodies and carbon accounting establishment; d) pilot/demonstration sites, provinces and regions establishment; e) implementation of the National REDD+ Strategy (NRPS) Readiness Strategies; f) Scale up from site-level to provincial and regional levels; and g) establishment of new sites. REDD+ pilot/demonstration establishment is one of the major activities of the readiness phase. At present, the three pilot demonstration sites established in the provinces of Quezon, Palawan and Southern Leyte have been completed. The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, the major funding agency for the 3-year (2009-2013) Southern Leyte REDD+ pilot project, is moving towards other REDD+ pilot areas in the provinces of Davao Oriental, Eastern Samar and Albay. Hence, with the completion of the REDD+ pilot demonstration project in Southern Leyte, it is appropriate to determine the major contribution of the Young Innovators for Social and Environmental Development Association(YISEDA), the CBFM-People's Organization (PO), in the achievement of sustainable livelihoods attributed to REDD+ pilot project activities. Specific project activities implemented at the pilot site differ depending on the funding support. The degree of participation of PO members to REDD+ pilot activities is vital to sustain the effort as well as achieve the goal of forest carbon stock enhancement and reducing deforestation and

forest degradation.

Sustainable livelihood principle is central in REDD+ and a major objective in the implementation of CBFM in the country. It is promoted by Amatrya Sen and used by many scholars to assess the impacts of forestry development initiatives such as CBFM to the livelihoods of the poor (DFID, 1992). Many REDD+ scholars acknowledged the importance of sustainable livelihoods in assessing the impacts of REDD+ (Jagger, Atiadia, Pattanayak, Sills, & Sunderlain, 2009; Angelsen et al. 2009; Caplow, Jagger, Lawlor & Sills, 201; Karki, 2013). As development pushes further to cover remote rural areas in the countryside through the promotion of sustainable development and inclusive growth, the forestry sector has long been putting forward all efforts towards sustainable forest management. Forestry initiatives' contribution to the general well-being of the communities is very much sought so that good experiences and lessons can be replicated while challenges and problems can be addressed. REDD+ intends to learn from the implementation of past participatory forest management (PFM)/CBFM projects (Agrawal & Angelsen 2009; Peras *et. al*., 2015).

In the Philippines, the three (3) decade-long of CBFM implementation is considered ineffective resulting to limited impacts due to unstable policy, complex procedures and requirements, project mentality view of CBFM (rather than as an approach that replaced the traditional commercial large-scale forestry), and weak institutional support system (Pulhin, Inoue & Enters, 2007). The same pattern leading to the failures of CBFM in most REDD+ sites emerges. Hence, we argue that REDD+ implementation has the tendency to repeat the mistakes of forestry-related development initiatives, such as CBFM, in its pilot demonstration areas. Furthermore, REDD+ may reproduce these failures.The paper aims to provide an understanding on the effects of REDD+ on sustainable livelihood, issues of co-benefits and trade-offs and adherence to SES. Moreover, this chapter addresses the questions: How do CBFM members associate REDD+ pilot project activities to sustainable livelihoods? What are the co-benefits and trade-offs of REDD+ pilot project activities on capital assets of the poor? Will the failures of CBFM be reproduced in a REDD+ area?

## 5.2 Research Method

### *5.2.1 The Study Site*

The study selected the REDD+ Readiness Pilot Demonstration Project implemented by the CBFM PO-YISEDA in Bgy. Lunas, Maasin City, Southern Leyte (Figure 3, Table 2), with a funding support of PhP 2.64 million from GIZ. This project is part of the GIZ Southern Leyte "Climate-Relevant Modernization of Forest Policy and Piloting of REDD in the Philippines" covering 31 848 ha. Focused on forest policy reforms, the REDD+ pilot activities served as source of information for REDD+ implementation in the country. YISEDA is one of the CBFM-POs under this REDD+ readiness project from October 2009-March 2013 covering 150 ha intended for reforesting denuded areas and rehabilitating degraded forests, as well as promote conservation, sustainable management of forests and enhancement of carbon stocks. YISEDA was awarded the 2012 Best Performing PO in Region 8 during the 2012 First

Community-Based Forest Management People Organizations (CBFM-PO) Congress. It was assessed to have a profound capability to implement forestry development projects based on its timely, effective and efficient accomplishment of previous projects, with dynamic leader and PO members highly committed to greening the environment.

*5.2.2 Data Collection and Analysis*

Data was gathered using a combination of qualitative and quantitative approach which includes a household survey, focus group discussions (FGDs) and key informant interview (KII). These were complemented by actual observations in the conduct of boundary/peripheral reconnaissance survey of the CBFM area.

A total of 51.85% of the 108 YISEDA members was randomly interviewed using a semi-structured interview schedule. For purposes of this study, the respondents were selected based on their availability during the duration of the survey and their active membership status (in terms of regular attendance to meetings and activities of the organization). The household survey provides information on the current household livelihood capital assets which are associated with the present socio-demographic and economic characteristics of the respondent's household. Respondent's knowledge and participation to the different REDD+ pilot activities were also gathered. The level of participation to these activities was assessed using a 5- interval Likert scale: where 1 is very low, 2- low, 3- moderate, 4- high, 5- very high. Lastly, respondent's perception on the associated impacts of REDD+ readiness pilot activities, either positive (co-benefits) or negative (trade-offs), on the livelihood capital assets were determined.

Descriptive statistics was used to analyze the household livelihood capital asset characteristics and used to support the information obtained from the FGD. Impacts of CBFM and REDD+ were also gathered using the household survey. The impacts between the three (3) periods -- before CBFM (1999), during CBFM (2000-2010) and with REDD+ (2009-2013) -- were assessed by the respondents using the ladder diagram. Each period is compared with another period using a two-tailed t-test to determine the degree of variation of scores given by the respondents.

Focus group discussions (FGD) were conducted to have a collective understanding on the impacts of the REDD+ pilot demonstration project on sustainable livelihoods objective as well as on the issues and challenges for future full blown REDD+ implementation. Also, a total of nine (9) key informant interviews (KII) were conducted, comprising key officials of YISEDA, GIZ field personnel, DENR and LGU (province, municipal and barangay) field staff. This was undertaken to solicit the perspectives of key individuals knowledgeable on the impacts of CBFM and REDD+ implementation to sustainable livelihoods. This method provided key insights leading to a comprehensive analysis of the future challenges of REDD+ implementation. Finally, a peripheral reconnaissance survey of the CBFM area was made to supplement the above-mentioned data gathering activities. Actual observations focused on the condition of the CBFM area and in verifying the most recent activities administered by individual members and YISEDA, the current challenges, threats (illegal forestry-related activities), and

opportunities for sustainable livelihood generation.

## 5.3 Results

### *5.3.1 The Pilot Site-Level Context of REDD+ (readiness and its pilot demonstration project activities)*

The Southern Leyte REDD+ pilot/demonstration site is one of the funded by the GIZ together with the Department of Environment and Natural Resources (DENR) – Community Environment and Natural Resources Office (CENRO) of Maasin City as the lead executing agency. The project intends to reduce GHG emissions by improving climate-related forest policy and conserve biodiversity. More specifically, the project: 1) modernized forest policies and develop specific incentives for reducing emissions from deforestation and forest degradation (REDD); 2) forged conservation/co-management agreements among stakeholders; 3) implemented REDD pilot activities as innovative measures to avoid deforestation and rehabilitate degraded forests in and around selected protected areas in the Philippines; and, 4) enhanced the capacities of DENR, local government units and local population for planning and implementation of climate relevant forest measures, conflict mitigation, securing land use rights and improving local livelihoods.

At the pilot sites, GIZ forged a financing agreement with the CBFM-POs in the implementation of reforestation, agroforestry and conservation activities. The REDD+ pilot site implementing CBFM-POs were the Young Innovators for Social and Environmental Development Association (YISEDA), Maasin, Southern Leyte; Anahaw Multi-Purpose Cooperative (AMPCO), Bontoc, Southern Leyte; Kahupian Upland Farmers' Association (KUFA), Sogod, Southern Leyte; Tomas Oppus Forest Developers Farmers' Association Inc. (TOFDA), Tomas Oppus, Southern Leyte; and Tomas Oppus-Malitbog Farmers' Association Inc. (TOMFA), Tomas Oppus, Southern Leyte (Quitoriano, 2013).This study only highlights the experience of YISEDA-CBFM in its REDD+ pilot project implementation. Among the activities financed by GIZ are reforestation, agroforestry and assisted natural regeneration (ANR). Reforestation strategy or multi-purpose tree plantation aimed at the establishment of 77 hectares production forest for lumber and fuelwood production as well as for the protection of forest areas needing rehabilitation. This strategy targeted open and denuded areas. The farms of 63 members who availed of the project were planted with mahogany (*Swietenia macrophylla*), narra (*Pterocarpus indicus*), molave (*Vitex parviflora*) and indigenous species. Agroforestry was promoted to provide livelihood and income to YISEDA members and increase forest cover. About 25 hectares of agroforestry production had been established within the farms of 50 members. Assorted grafted fruit trees like jackfruit (*Artocarpus heterophyllus*), lanzones (*Lansium domesticum*), rambutan (*Nephelium lappaceum*), durian (*Durio zibethinus*), banana suckers, or coconut or native coffee were planted while pineapple was encouraged (optional) for areas not suitable for vegetables/corn (*Zea mays*), peanuts (*Arachis hypogaea*), ginger (*Zingiber officianale*), sweet potato (*Ipomoea batatas*), gabi (*Colocasia esculenta*) and other root crops. Areas targeted are those within existing agricultural production areas, with soil and water conservation measures, or in newly established plantation. ANR was established under patches of remnant secondary growth forest and

emerging pioneer vegetation in previously forested areas. It is located within the farms of 63 household beneficiaries that participated in the project. While project management is handled by YISEDA, stakeholders were enjoined to undertake collaborative maintenance. Under protection forest category, the ANR species include mixed dipterocarps and fast growing species that can assist naturally growing trees to rehabilitate and expand their vegetative cover (YISEDA REDD+ Project Document, undated).

The prevalence of denuded open lands in the pilot demonstration area justifies the reforestation and agroforestry components as the two major REDD+ activities to address forest land management concerns. There was a strong commitment in the capacitation of local stakeholders in forest project planning, management, monitoring and evaluation, and management skills seen to be critical towards project sustainability (Lasco et al., 2013). The policy modernization project of GIZ has focused on the conduct of studies on forest policies and on drivers of deforestation and forest degradation.

YISEDA's experience is modeled towards sustainably managing and protecting the natural resources. Among its accomplishments are propagation of more than 500,000 forest and fruit trees done mostly by women; planted 428,920 mixed indigenous and exotic species within the 422-ha reforestation area; natural forest enrichment planting of 600,000 endemic species planted in 120-ha protected area; planted 14,272 mixed fruit trees of durian, lanzones, rambutan, coffee, cacao and other agricultural crops within the 102-ha agroforestry area; and developed and managed a 19-year old forest plantation within the 130-ha production forests. The organization received technical and financial assistance in implementing natural resources management projects from various funding sources, such as GIZ amounting to P4.5 M covering their CBFM and REDD+ areas; DENR support for their National Greening Program (NGP), CARP and Upland Development Program (UDP) amounting to P3.9 M; the Provincial Government of Southern Leyte in the form of livelihood financial assistance amounting to P50,000; and other technical support from NGOs like FOBI and Heifer International (YISEDA, undated).

*5.3.2 Impacts of REDD+ readiness pilot demonstration project*

The implementation of community-based forest management program (CBFM) in YISEDA as discussed in Chapter 4 contributed to the improvement of the livelihood capital assets of the member's households. Although the financial capital asset remains a challenge. Members believed that access and control of resources particularly timber significantly decline with CBFM. These developments in the livelihood capitals of YISEDA are already challenging the sustainability of CBFM implementation.

As new developments like REDD+ are underway in the implementation of CBFM in the country. It will be of utmost importance to determine if REDD+ will further improve the livelihood capital assets of CBFM communities. The discussion below highlights the impacts of REDD+ pilot project on the five (5) livelihood capitals of YISEDA members' households. The impacts attribution to REDD+ particularly focused during the REDD+ pilot project implementation in YISEDA, hence, separates the earlier CBFM impacts from REDD+. The household survey referred only to the duration and the activities implemented under REDD+.

Human capital

YISEDA members are not very particular with the different projects they are implementing. Knowledge on CBFM refers to the forest conservation and protection activities employed within the CBFM area. In the same manner, members associate knowledge of REDD+ basically from GIZ and pertain to it as a GIZ project. At least more than half (66%) of the members have some degree of knowledge on REDD+ (Fig. 20-a). The participation of members to the different activities in REDD+ became the basis of their knowledge which includes seedling production (41.38%), learned REDD+ through their attendance to seminars and trainings (31.03%), agreement with GIZ for funding projects (17.24%) such as forest conservation and protection (6.9%), and carbon stock enhancement (3.45%) (Fig. 20-b).

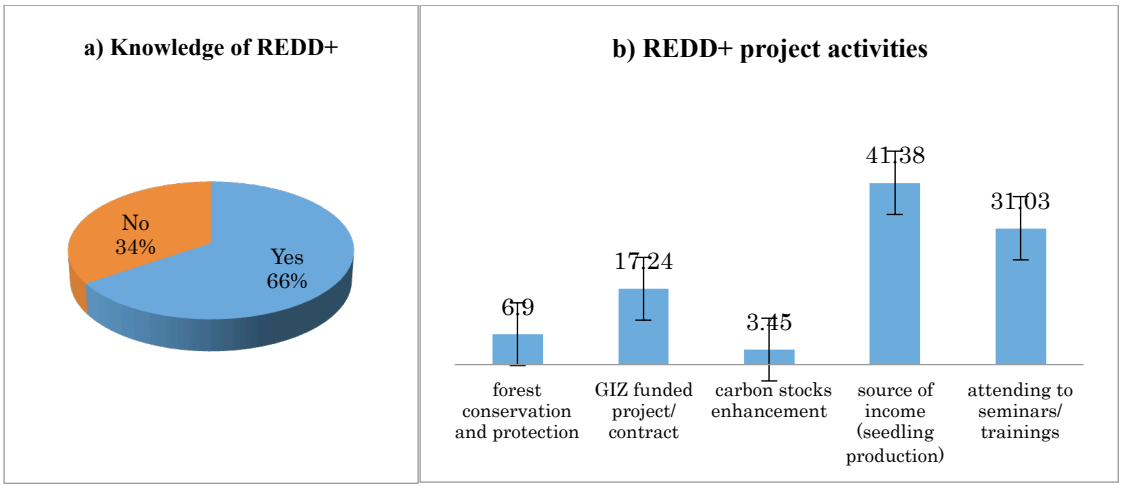


Figure 20. YISEDA members (a) knowledge on REDD+and (b) the activities under the REDD+ initiative.

The condition of education and health facilities in the member's households slightly increased from CBFM to REDD+ pilot implementation, but the variation is not significant (Table 16). Over-all REDD+ did not contribute to an improve condition of education and health in the member's household. Although some members claim the contribution of income derived from REDD+ pilot activities to the education of children in the tertiary level. Health condition of the households during REDD+ is in the same condition with CBFM. Health facilities are already available in the barangay through the Barangay Health Clinics while hospital is very accessible from the area considering the newly constructed road system reaching YISEDA or Sitio Canlugoc. Much of the impacts will be attained in the long run with REDD+ implementation due to the assurance and more sustained income once carbon payments progresses. YISEDA members believe to the potentials of REDD+ in sending all children to college, hence, during the FGD education is rated with a strong positive impact (+2) (see Fig 21).

Table 16. The average condition of the human capital assets of YISEDA in two (2) periods and the level of REDD+ impacts.

| Human capital | T2 | T3 | Obs. | Sig | REDD+ | Obs. | Sig |
|---|---|---|---|---|---|---|---|
| Education | 6.93 | 7.07 | 43 | NS | 0 | 43 | NS |
| Health | 6.46 | 6.73 | 37 | NS | 0 | 37 | NS |

*Note: T2 – during CBFM, T3 – during REDD. Rates are based on ladder scale 1(worst condition) -10 (improved condition)*

During the FGD, skills development such as technical and leadership/organizational skills was also considered but YISEDA rated these weak positively. Members believe that future impacts of REDD+ on skills development will not be as much as CBFM impacts. REDD+ pilot implementation invested on numerous trainings/seminars for YISEDA to instill the value of forest conservation and protection in the face changing climate by implementing the REDD+ initiative and at the same manner economically benefit from carbon payments. However, there are some members who raised the issue of training fatigue.

Despite the above facts, after 2 years of REDD+ implementation (2015) three (3) cases of illegal cutting activities have been apprehended by the DENR in YISEDA. This is attributed to the exploration of log buyers in the area which was accommodated by YISEDAs new leader, who happen to promise the continuation of timber harvesting even without permit to gain votes during the election. The weak leadership is vulnerable to the different threats of deforestation and forest degradation intended to be avoided under the REDD+ mechanism. This situation have been regarded by many authors as one of the failures of forestry development. Local people even under the CBFM program has the tendency to go back to their old destructive forestry-related practices after project termination for the lack of a more comprehensive approach to promote sustainable livelihood (Kaushal and Kala, 2004). This is a disappointment on the part of the DENR because YISEDA has been awarded the best performing PO in 2012 espousing the skills for project management and a strong advocate of forest protection and conservation.

*Natural capital*

The type of forest management employed in an area is indicative of the over-all condition of the forest, land and water resources. The granting of CBFM Agreement (CBFMA) in 2000 paved the way for the reforestation and rehabilitation of the denuded forest areas. The forest landscape of YISEDA CBFM has been transformed from an originally denuded state to a well-stocked forest vegetation. During CBFM, the area attained an over-all good condition of forest, land and water resources, hence, an average 6.96 rating. This condition somewhat improved to an average of 7.23, though not statistically significant, during REDD+ with the establishment of new plantations for ANR, reforestation and agroforestry. Moreover, REDD+ did not contributed to improving the over-all condition of resources found in the area.

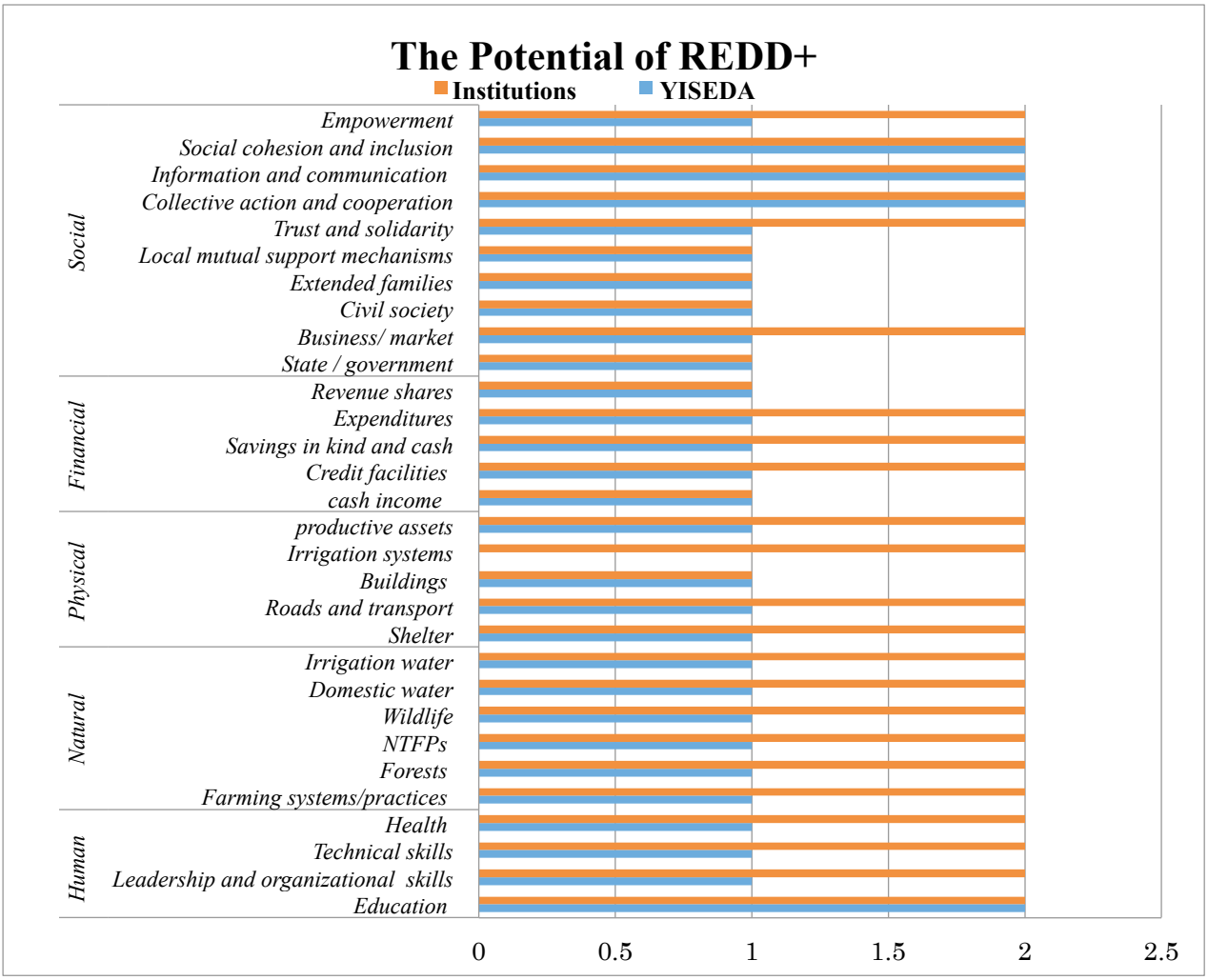


Figure 21. The potential level of impacts of REDD+ on the livelihood capital assets of CBFM-YISEDA member households.

FGD participants have positively rated the potential impacts of REDD+ on natural capital asset (Fig. 21). Local institutions gave a higher rating than YISEDA members, strong (+2) and weak (+1) positive, respectively. YISEDA members believed that REDD+ will have minimal contributions to improving farming systems/ practices, forest health, NTFPs, wildlife and water resources for domestic and irrigation use. Although, local institutions are more optimistic on the future impacts of REDD+ due to the promised benefits of trading carbon at the international market. However, the unclear future of REDD+ makes the local communities wary of its potential to create "enclosure" that will further constrain the use of forest resources. While over-all condition of the resources is improving through the different forest conservation initiatives implemented in YISEDA CBFM, accessing the resources especially timber diminished with CBFM implementation (see Chapter 4).

Access to resources is the freedom to utilize the resources within the CBFM area. This freedom was also believed to diminish with REDD+ implementation and will continue to constrain future access once carbon payments start to materialize (Table 17). There will a more stringent policy on forest use in the future under the REDD+ mechanism. This is already drawing negative impressions on the part of the members. Forest enclosure is feared by many for it will constrain future access to forest resources (Peras et al., 2015).Control over resources pertains to the overall management of the resources found within the CBFMA. The CBFMA is considered enhanced control of the government over local communities where devolution principle have been limited to responsibilities on forest development and protection (Pulhin et al., 2007). In the same manner, farmers lose full control over their farmlands inside CBFM area when subjected to the government's program CBFM-PO management. The score of members is consistent with the above perspectives. During CBFM the score of 3.49 slightly declined to3.38 during REDD+ implementation but the variation is not statistically significant. In a span of 2-3 years, REDD+ implementation has no contribution in enhancing control over the resources, the variation is statistically significant.

Compliance with resource management is demanded under the CBFM program. The REDD+ initiative also carry this resource management compliance of forest-dependent communities. Result of the study revealed there was an increase in resource management compliance from during CBFM to REDD+ implementation, but the variation is not statistically significant. Over-all REDD+ has no contribution on enhancing resource management compliance, but the variation is statistically significant. The amount of traditionally harvested resources declined during REDD+ implementation but the variation is not statistically significant. Traditional resources harvested in the CBFM area were abaca, timber, agricultural crops, etc. Among the reasons for this decline is the reduction of farm area devoted for farming because YISEDA management requires the planting of indigenous timber species in the farm area, restriction on timber resources without permit, etc. During REDD+ implementation, no change can be attributed to the REDD projects for enhancing the natural capital assets even for the over-all condition of the resources.

Table 17. The average condition of the natural capital assets of YISEDA in two (2) periods and the level of REDD+ impacts.

| Natural Capital | T2 | T3 | Obs. | Sig | REDD+ | Obs. | Sig. |
|---|---|---|---|---|---|---|---|
| over-all condition of the resource (forest, land, water, etc) | 6.96 | 7.23 | 47 | NS | 0 | 56 | ns |
| access to resources | 4.34 | 4.00 | 44 | ** | -1 | 56 | *** |
| control over resources | 3.49 | 3.38 | 45 | NS | 0 | 56 | * |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| amount of traditionally harvested resources | 4.30 | 4.11 | 44 | NS | 0 | 56 | ** |
| Compliance with forest management | 6.96 | 7.02 | 45 | NS | 0 | 56 | ** |

*Note: T2 – during CBFM, T3 – during REDD. Rates are based on ladder scale 1(worst condition) -10 (improved condition)*

Physical capital

The organization of YISEDA received new tools and equipment needed for timber harvesting from GIZ as part of the REDD+ program. Skills training on timber harvesting was also provided by GIZ intended for the 1st harvesting operation of YISEDA. At the household level, house ownership and the type of housing materials used did not change with before REDD+ implementation. The household assets/facilities generally declined with REDD+ particularly entertainment, furniture, appliances, transportation, and machineries while the communication system increased (Fig.22). The condition of the existing community infrastructure such as roads are important drivers to achieve sustainable livelihood goals of members. There was a significantly slight increase in road access while transport system slightly decline the variation is not significant (Table 18). Communication significantly improved while the little improvement in market accessibility is not significant. During the FGD, PO members and local institutions rated REDD+ potentials to be weak and strong positive on the physical capital assets of the community. The major change in the physical capital have been brought during CBFM but not entirely contributed by CBFM due to the LGUs mandate toward comprehensive development. Meanwhile local institutions believed that physical capital will be further enhanced when income from carbon payments materializes.

Table 18. The average condition of the physical capital assets of YISEDA in two (2) periods and the level of REDD+ impacts.

| Physical Capital | T2 | T3 | Obs. | Sig. | REDD+ | Obs. | Sig. |
|---|---|---|---|---|---|---|---|
| Road access | 3.89 | 4.04 | 55 | ** | 0.15 | 55 | ** |
| Transport facilities | 4.20 | 4.18 | 55 | ns | -0.18 | 55 | NS |
| Communication facilities | 3.93 | 4.04 | 55 | ** | 0.19 | 55 | ** |
| Markets | 4.26 | 4.30 | 54 | ns | 0.04 | 55 | NS |

*Note: T2 – during CBFM, T3 – during REDD. Rates are based on ladder scale 1(worst condition) -10 (improve condition)*

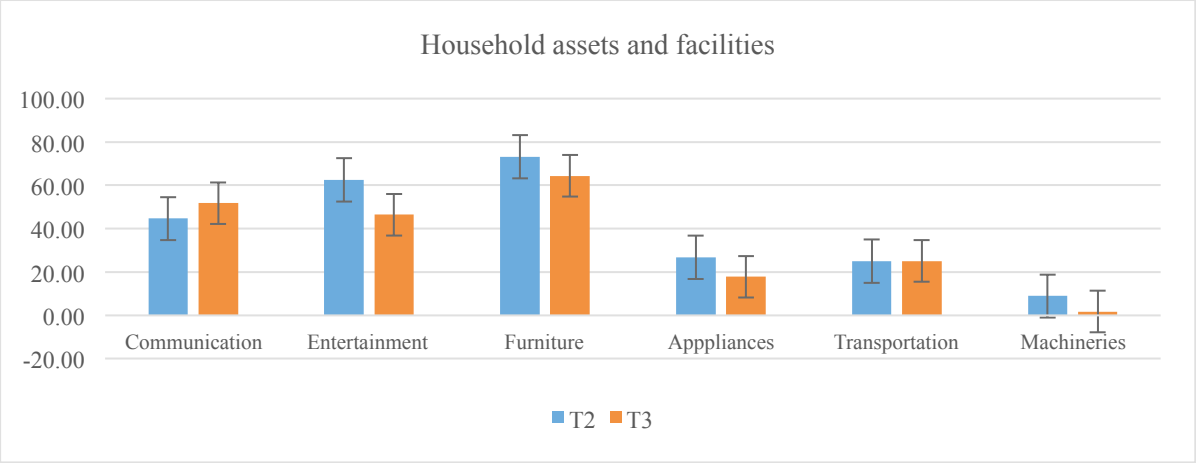


Figure 22. Household assets and facilities owned by respondents during REDD+ project implementation

Financial capital

A considerable decline in the total amount of income was revealed during CBFM implementation that confirms the earlier findings of Pulhin et al (2008) on the case of CBFM Banila Watersheed in northern Luzon, Philippines. The empirical data of this study shows that total income generated from farming and other sources increased from CBFM to REDD+ implementation (Table 19). Much of the increase cannot be solely attributed to REDD+ pilot project implementation as income sources reported by respondents are not dependent on REDD+ project activities (Fig. 24-a and b). Although an important contribution of REDD+ would be the assurance of a meager amount of income from farming. Project activities from YISEDA will be dependent on availability of financial resources, hence, may not be sustainable in the long term. Hired labor is the second most common income source of respondents, although the average income generated is very low. There are only two (2) respondents earning a good amount of income from chainsaw operation. Looking at the value more closely, income during REDD+ implementation increased significantly for total income and other sources while increase income from farming is not statistically significant. A major of increase in total income comes from other sources at Php 20,462.59 and about Php 7,583.49 for farming. Nevertheless, these increases are still beneficial for the households as prices of goods and services are also increasing.

The ladder scale rating result says differently as respondents believed a significant decline in the local income from a rating of 5.63 to 5.30, but the -0.55 attribution to REDD+ is not statistically significant. The lower average income from farming (Figure –b) is attributed by some members to the reduction of farm area (in terms of size) which was used for reforestation and ANR activities. The reduced income was contested by some members because the services rendered during plantation establishment was equally compensated, though admittedly such compensation is temporary. Also, 3 major project/activities, i.e., the first harvesting operation of YISEDA, implementation of Comprehensive

Agrarian Reform Program (CARP) and the National Greening Program (NGP) were simultaneously implemented with REDD+. These projects enable YISEDA to save the organization's income that was used to sustain on-site monitoring activities of the project area. Although, the organization's income from timber harvesting was break-even, the minimal income derived and the unsold logs were decided to be invested in physical assets like the multipurpose hall, saw mill and stock yard (Peras et al., 2015). Currently, YISEDA no longer have funds to support its activities especially boundary monitoring after two successive changes in organizational leadership[i] and the absence of new externally-funded development projects. The two leaders were not able to follow the good performance and prestige accorded to the organization by their predecessor. On the other hand, credit facilities also decreased during REDD+ because income is good and availing credit is not a priority. Although there are some that availed credit from usual immediate sources such sari-sari store, micro credit, and most importantly from the relatives (Fig. 23).

Table 19. The average condition of the financial capital assets of YISEDA in two (2) periods and the level of REDD+ impacts.

| Financial capital | T2 | T3 | Obs. | Sig. | REDD+ | Obs. | Sig. |
|---|---|---|---|---|---|---|---|
| Income diversity | 2 | 2 | 56 | *** | 0.73 | 56 | *** |
| Total income | Php 31,265.00 | Php 60,627.14 | 56 | *** | Php 29362.14 | 56 | *** |
| Income: farming | Php 19,919.84 | Php 27,503.33 | 56 | ns | Php 7583.49 | 56 | NS |
| Other income sources | Php 11,345.16 | Php 31,807.75 | 56 | *** | Php 20462.59 | 56 | *** |
| local income* | 5.63 | 5.30 | 46 | * | -0.55 | 56 | ns |

*Note: T2 – during CBFM, T3 – during REDD. Rates are based on ladder scale 1(worst condition) -10 (improve condition)*

** ladder scale 1-10 was used*

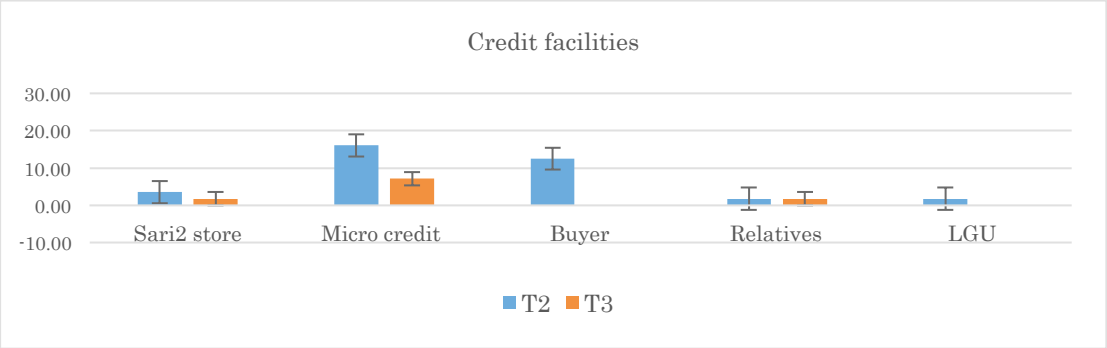


Figure 23. Available credit facilities during REDD+ pilot implementation.

During the FGD, YISEDA members rated all financial capital indicators to have weak positive

impact (+1) with REDD+ (Fig. 21). REDD+ is visualized to increase income of CBFM communities in the future. The major challenge of this initiative is making it more financially viable to be able to compete with illegal forest activities that generate high income. Although, none of the respondents reported sourcing income from illegal forest activities during REDD+, personal communication and observation from the reconnaissance survey of the researcher confirms the existence charcoal making (timber), illegal cutting and kaingin making. Members also foresaw that credit facilities will be more accessible during full REDD+ implementation as loan providers are more trusting that repayment will not be a problem once income from REDD+ will be sustained. Still, the establishment of a more effective re-payment mechanism has to be strictly followed. Revenue shares from PO income is envisioned to have weak positive impact with REDD+ as future income will be more sustainable and equitably shared among members.

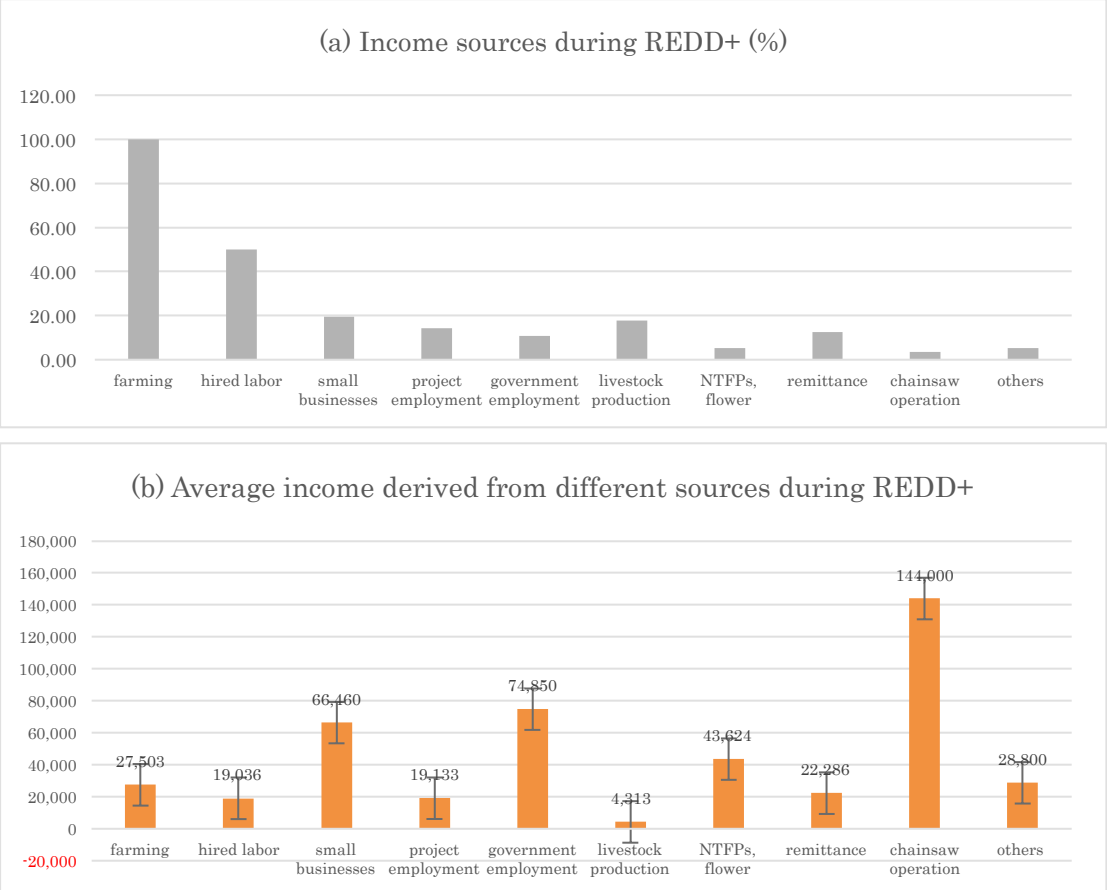


Figure 24. Respondents (a) income sources (%) and (b) average income from different sources during REDD+ implementation.

Social capital

Social capital asset is a very important resource for YISEDA and its members to achieve their livelihood objectives. Table 20 shows a significant decline in social capital indicators during REDD+

implementation. The greatest decline is in bonding social capital that pertains to the relationship of members to another. In contrast trust, reciprocity and cohesiveness among YISEDA members declined significantly during the REDD+ project conceivably due to issues concerning income from timber harvesting. This is despite trainings/seminars provided to YISEDA members. The negative impression for trust among members is brought about by the disappointment of some members with income sharing from timber harvesting. Reciprocity or the "*bigayan*" system is no longer practiced up to present as individual family needs are more important than others. The issues that confront YISEDA did not help to bind them, it rather set individuals apart from one another, where at least two (2) opposing groups have been formed. Although, reciprocity and cohesiveness attribution is not statistically significant, the existing issues have to be addressed to prevent the organization from collapsing. Fortunately, the bridging social capital improved during REDD+ implementation. One of the main reasons for the REDD+ project in YISEDA is due to good performance and success in project implementation. YISEDAs success stories were disseminated among co-CBFM POs. YISEDA gained respect and admiration from other CBFM-POs the reason for an improved bridging social capital.

The linking capability of YISEDA also improved during REDD+. Frequent visitation of foreign nationals, NGOs, government institutions, academe, and LGUs is a reflection of the link already established. Sustaining these collaboration is very important for YISEDA to also sustain the organization for it also means funding for new development projects. In addition, the ability to participate in and influence community affairs as well as presence of conflict slightly decreased but can be generally considered none or zero attribution to REDD+.

*5.3.3 REDD+ strengths, weaknesses, opportunities and threats*

A REDD+ SWOT analysis is employed to have an in-depth analysis of impacts of REDD+ on the livelihood capital assets particularly highlighting REDD+ co-benefits and trade-offs. Nzunda and Mahuve (2011) work on the matter involved the perception of the experts/researchers judgements and the wealth of research findings on REDD. The perception of local stakeholders on REDD+ impacts is still unexplored. Although much of the discussions on REDD+ emphasized the role of and benefits to local communities. The discussion that follows presents the SWOT analysis of REDD+ pilot project implementation (Table 21).

The different trainings/seminars on the close link of climate change with forests, most especially forest conservation and protection, provided to YISEDA form part of the human capital strength of REDD+. The use of global positioning system (GPS), Geographic Information System (GIS), etc. were also introduced to some members. Although trainings on these sophisticated technologies were provided to LGUs and DENR personnel for mapping purposes of all CBFM areas in the province. The technical nature of these technologies are unfamiliar to YISEDA members as majority of them are farmers who have reached some degree of education. Also concepts of carbon, carbon sequestration are too technical and need to be translated laymen's terms. The contractualization of the REDD+ personnel

at LGUs and DENR is the only considered weakness of the project that threatens REDD+ human capital. REDD+ project staff have also underwent a wealth of trainings and seminars. The continued IEC have widen the knowledge base of members could be disseminated to a greater public to prevent / avoid deforestation and address climate change mitigation policy for a health environment.

Table 20. The average condition of the social capital assets of YISEDA in two (2) periods and the level of REDD+ impacts.

| Social Capital | T2 | T3 | Obs. | Sig | REDD+ | Obs. | Sig |
|---|---|---|---|---|---|---|---|
| *A. Bonding* | | | | | | | |
| 1. Trust | 6.37 | 5.65 | 51 | *** | -0.73 | 51.00 | *** |
| 2. Reciprocity | 5.45 | 5.22 | 51 | ns | -0.24 | 51.00 | ns |
| 3. Cohesiveness | 6.90 | 6.86 | 51 | ns | -0.04 | 51.00 | ns |
| *B. Bridging* | | | | | | | |
| 1. Trust | 3.73 | 4.04 | 45 | *** | 0.31 | 45.00 | *** |
| 2. Reciprocity | 5.51 | 6.32 | 41 | *** | 0.73 | 45.00 | *** |
| 3. Cohesiveness | 3.65 | 4.09 | 43 | *** | 0.42 | 45.00 | *** |
| *C. Linking* | | | | | | | |
| 1. Trust | 6.98 | 7.19 | 48 | ns | 0.21 | 48.00 | ns |
| 2. Reciprocity | 6.76 | 6.63 | 51 | ns | -0.14 | 51.00 | ns |
| 3. Cohesiveness | 7.04 | 7.47 | 51 | ** | 0.43 | 51.00 | ** |
| *D. Others* | | | | | | | |
| 1. Ability to participate in community affairs | 6.41 | 6.76 | 37 | ** | -0.25 | 56 | ns |
| 2. Ability to influence community affairs | 6.28 | 6.42 | 36 | NS | -0.43 | 56 | * |
| 3. Presence of community conflict | 3.33 | 3.17 | 42 | NS | -0.41 | 56 | ** |

*Note: T2 – during CBFM, T3 – during REDD. Rates are based on ladder scale 1(worst condition) -10 (improve condition)*

The strength of REDD+ in terms of the natural capital asset is the plantation established for assisted natural regeneration (ANR), agroforestry, reforestation, rattan production, and strict forest protection. However, during the implementation problems arising from slow processing of papers/documents related to REDD+ hamper planned physical development particularly referring to the differing activities of plantation development. This is attributed to the Commission on Audit (COA) rules following the Government Procurement Act (Republic Act 9184) as funds are downloaded by GIZ directly to LGUs. The limited number of personnel that constitute a composite team of project monitoring, evaluation and validation adds to the weakness of REDD+ during its pilot implementation. This can be easily addressed when REDD+ is in full blown. Logging moratorium under EO 23 is still not considered a

threat to CBFM implementation. But as REDD+ progresses favoring a more conservative approach may lead to a stricter protection goals of forest conservation depriving CBFM communities of benefits from timber utilization. This threat is known as "forest enclosure" which is also feared with REDD+ implementation. But there are also opportunities for a well vegetated and healthy forest condition which may invite investors to finance ecotourism activities. Threats to natural capital include project sustainability due to short turn-over of political leadership (LGUs); capacity of YISEDA to sustain the activities even after REDD+ project completion; conflicts due to stricter protection activities.

The income generated from REDD+ could be used to improve physical infrastructure, hence, a major strength of the physical capital asset. There are a lot of opportunities with REDD+ particularly the development of roads and transport system, for ease of transport of forest goods and services to the market. Road system development could also be considered the spill-over effect of ecotourism activities. The only threat will be influx of migrants as development in the area progresses with REDD+, hence, inviting new pressure to the forest environment. The financial gains from carbon payments once realize will lead to the improvement of the local economy. However, income will also decline with the threat of forest enclosure. The generation of job opportunities in ecotourism areas will compensate for the lost income according to FGD participants. Social capital strength is the close collaboration established among different local stakeholders in REDD+ implementation. In the same manner, this collaboration was formally formed through the establishment of the Southern Leyte Provincial Technical Working Group (PTWG). On the part of YISEDA, this collaboration means assurance of funding support to continue REDD+ initiatives. The

Table 21. SWOT analysis of the potential impacts of REDD+ on livelihood capitals.

| Strengths | Weaknesses | Opportunities | Threats |
|---|---|---|---|
| *Human Capital* | | | |
| Trainings on the use of modern technology | Limited REDD+ technical personnel<br>Contractual personnel.<br>REDD+ issues are too technical | Wider knowledge dissemination<br>Less emission, less pollution leads to improvement of health.<br>Additional technical knowledge can prevent further deforestation. | Trained personnel may leave due to absence of permanent position |
| *Natural Capital* | | | |
| REDD+ project activities.<br>Delineation of forestlands and conduct of forest protection activities | On-time completion of planned physical development<br>Limited number of personnel to conduct M&E and validation.<br>Prevents timber extraction/ harvesting | Increase forest cover and carbon stock<br>Encourage ecotourism investors – (canopy walk, zipline). | REDD+ project sustainability<br>Uncertainty on POs and LGUs capacity to sustain REDD+<br>Conflict from resource utilization exclusion<br>Deprivation of forest incomes.<br>Forest (resources) enclosure |
| *Physical Capital* | | | |
| Income from projects<br>Involvement / commitment of LGUs | | Development projects lead to physical development<br>Income from timber harvesting<br>Spill-over effect of ecotourism potential | Development in REDD+ areas may invite the influx of migrants that will create new pressure to the environment.<br>More transportation system will lead to increase carbon emission |

| Strengths | Weaknesses | Opportunities | Threats |
|---|---|---|---|
| | | | |
| *Financial Capital* | | | |
| Income from projects | Delayed release of funds from GIZ to LGUs.<br>COA/government rules slowdown process in LGU<br>Ban on timber harvesting | Job creation.<br>Development of areas for eco-tourism, etc. | Reduced income when timber harvesting will be lessened/ restricted. |
| *Social Capital* | | | |
| Strengthened linking capability of PO<br>Continuous GIZ support assurance for POs.<br>Enhanced collaboration between agencies in the Provincial Technical Working Group (PTWG) established through REDD+ | Irregularity of meeting of PTWG due to financial constraints | Improved linkaging capability of POs | Too restrictive REDD+ policy will lead to conflict<br>Sustainability of PTWG after REDD+ project and support from GIZ could pose threat to the sustainability of the effort. |

PTWG will serve as the second lowest level in the Philippines REDD+ structure that will coordinate REDD+ decision making at the provincial level, provide necessary support and oversight to the forest management units (FMUs), help resolve related grievances and provide funds and services. In the interim, this PTWG is being sustained by the Office of the Provincial Governor of Southern Leyte with the PENRMO as its Secretariat. Local institutions believed that financial constraints to sustain the PTWG will be a weakness that may result to irregularity of meetings especially after termination of GIZ support.

*5.3.4 Participation to the REDD+ pilot project activities*

Member's participation in forestry-related activities tare presented in Table 2. T Reforestation (67.86%), agroforestry (48.21%) and forest rehabilitation (46.43%) topped member's participation as these are the key project activities under REDD+ pilot project. Participation to these activities are compensated by cash income and the amount depends on the degree of services rendered. YISEDA members are paid at Php 150.00 a day ($3.26) lower than the prevailing wage rate of P200.00 a day. The Php 50.00 difference forms part of the organization savings and used by YISEDA as a counterpart in funding other development activities.

Table 22. Participation of YISEDA members to forestry-related project activities.

| Forestry Activities | Freq. | Percent |
|---|---|---|
| Reforestation | 38 | 67.86 |
| Agroforestry | 27 | 48.21 |
| Forest rehabilitation | 26 | 46.43 |
| Forest protection (foot patrol) | 14 | 25.00 |
| Non forest-based livelihood opportunities | 14 | 25.00 |
| Biodiversity conservation | 7 | 12.50 |
| Sustainable livelihoods generation | 5 | 8.93 |
| Forest governance/ Policing | 5 | 8.93 |

The pilot project activities of REDD+ are the common project activities promoted and implemented in the previous projects related to CBFM. Majority of the respondents participated in reforestation activity (73.08%) followed by agroforestry (59.62%), assisted natural regeneration (53.85%) and forest protection (25.00%) (Fig. 2). Male members dominate participation to these activities while female members are in-charge for the production of seedlings needed by the project. Women also get compensated depending on the number of seedlings raised. Some were able to supply other CBFM organizations in the province. Forest protection and ANR activities are highly participated by male members because it requires strength to patrol the steep and rugged periphery of the CBFM area and

locate the boundary marker as they evaluate threats to the area.

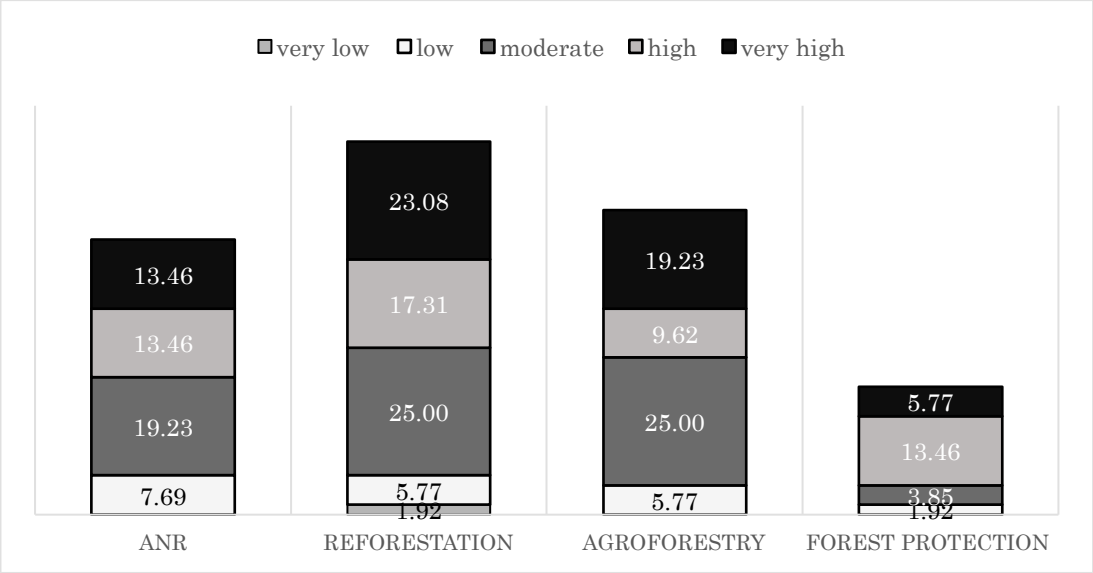


Figure 25. Level of participation of respondents on the REDD+ readiness pilot project activities (%)

YISEDA's acceptance to implement REDD+ pilot demonstration project is in accordance with the goals of CBFM and responsibility as forest stewards. All members were expected to participate in the simultaneous implementation of the REDD+ pilot project and the other 3 forestry development projects (NGP, CARP and timber harvesting). This situation led YISEDA to hire non-members to suffice the needed labor requirement of the different projects and eventually complete project activities on time. Future dividends are also expected once income from economic activities are realized. The cash income from project activities is not enough for members to fully detach from their traditional forest-related income sources like logging (illegal), charcoal making and kaingin making, at least with REDD+ there is a commitment to reduce the intensity of these activities on site (Carandang *et al*. 2013).

## 5.4 Discussion

### *5.4.1 Local stakeholder's optimism with REDD+*

YISEDA and local institutions recognize the environmental and socio-economic benefits derived from REDD+ pilot project implementation. These benefits are also considered potential benefits once REDD+ carbon payment materializes. At present, the optimism of YISEDA for REDD+ is low because it is viewed as project-based with a duration of three (3) years. Hence, economic benefits will only accrue for 3 years during project implementation. YISEDA members do not expect much from the REDD+ project for they believed that government will impose stricter policies in CBFM that may constrain REDD+ implementation. YISEDAs future with REDD+ is still vague/unclear. Members are aware of REDD+ background and concepts toward climate change mitigation, but transparency on REDD+ developments in the country is missing at the site level.

The local institutions' high optimism for REDD+ pertains to the future expected cash income. REDD+ could be the cheapest mechanism to address climate change mitigation policy, yet at the local level it is the most profitable and sustainable source of income for local communities. Studies show that by 2030 an estimated reduction of 60 million tons of carbon is equivalent to US$97 to 417 million of mean carbon credits annually at US$5 per ton C (Lasco et al., 2012). This is based on a modest estimate of an annual reduction of 5-15% rate of deforestation and 1.5% increase in doubling the rate of reforestation annually. Income from C emission reduction can be used to finance other forest conservation initiatives (Lasco et al., 2012).

*5.4.2 Sustainable livelihood implications of REDD+ pilot demonstration*

Sustainable livelihood is a co-benefit of REDD+ (IPCC, 2014; Poudel *et al*. 2015; Howson & Kindon, 2015; Hirons, 2011; Angelsen, 2009), together with biodiversity conservation and equity are a must to the legitimacy and effectiveness of REDD+ (Visseren-Hamakers *et al*. 2012). Sustainable livelihood is also promoted in the successful implementation of REDD+ in the country (PNRPS, 2010). The 3 REDD+ pilot demonstration areas in the country are implementing different livelihood activities. The two (2) sites are indigenous people (IP) manage, the Dumagat-Remontado tribe of General Nakar, Quezon and Tagbanua tribe of Palawan. The REDD+ pilot activities focused on enhancing their livelihood strategies such as bee production/farming for Dumagat-Remontado while non-timber forest products (rattan, bamboo) for the Tagbanua tribe. Meanwhile, YISEDA CBFM is focused on forest carbon stock enhancement, conservation and protection addressing the drivers of deforestation and forest degradation.

The livelihood capital asset of YISEDA households typifies a family living below the poverty line (83.93% has an annual income that is less than P100 000.00 or $2 173.91). Less dependency on farming means that income is sourced from available occasional off-farm work in a rich man's farm or in construction works. Annual income averages to P58 492.85 ($1 271.58), is way below the annual per capita poverty threshold level of the province at P19 431.00 ($422.41) (PSA Region 8, 2016) for 5-member households in YISEDA with an average dependency rate of 146%. Despite this condition, members are still dependent on project-based employment offered by YISEDA for short-term source of additional income.

REDD+ pilot implementation are concentrated on forest carbon stock enhancement with little room for enhancing other capital assets. Investing in self-sustaining local-level programs is an assurance of income feasible for REDD+ engagement. At the households, the planting of indigenous species in the farms are enhancing the natural capitals. The knowledge system acquired from the different activities during REDD+ pilot implementation helped members to venture into seedling production. Sustaining seedling production through enterprise development like the smallholder nursery of Falcata in the Caraga region could be beneficial to members. The sense of continuity (sustainability) is missing from on-site REDD+ implementation, the main reason it is considered project-based.

Other issues emerged. An important concern was raised by some members on training fatigue, with the series of environmental conservation trainings/seminars conducted in the area in the last 10 years as different projects were implemented. YISEDA's diligence and known capability to complete the scheduled tasks even with little financial resources made it a most sought-after PO among funding agencies. This was largely due to high volunteerism exhibited by members. While YISEDA's high dependence on volunteerism paid off, through time, volunteerism subsided and replaced by "project mentality;" that means, members expect financial incentives for every service rendered. This perspective evolved from the last five years of continued paid labor services to members engaged in the different forestry development projects. In recent years, when projects ended and the financial resources of YISEDA dried up, members were no longer willing to do any volunteer work, leaving YISEDA's officials to do the work themselves.

In the long run, pilot activities of ANR, reforestation and forest protection cannot provide the financial capital needed by the household. Moreover, once timber trees mature, agricultural crops can no longer compete for growth. Agroforestry is the only financially feasible income source in both the short and long terms, if farmlands were managed properly. Access to timber utilization may be limiting for future REDD+ even with the promotion of sustainable management principles. The opening of the road system in Bgy. Lunas as an alternative route to Tacloban City threatens the security of CBFM area from illegal activities. The social capital assets of YISEDA improved with REDD+ pilot project due to the different local institutions/organizations involved that serve as the support system of the households.

Table 3 below summarizes the positive (co-benefits) and negative (trade-offs) association of REDD+ pilot activities to livelihood capitals. In general, the different REDD+ pilot activities have both positive (+) and negative (-) impacts on the livelihood capital assets. The positive impacts refer to co-benefits derived out of REDD+ implementation, such as income from pilot activities and during carbon trading. However, negative impacts pertain to trade-offs under REDD+ such as "forest enclosures" that restrict timber utilization.

Among the co-benefits of REDD+ activities are stricter forest protection activities leads to reduced occurrence of illegal forest activities; local community capacitation through the provision of seminars and trainings; reduced vulnerability of people and forests to climate change impacts; carbon emission potentials of agroforestry species; cash income from project implementation; increased household assets/facilities/appliances; and closer linkage with local institutions working in forestry. Meanwhile, trade-offs include farm land area reduction to give way for ANR, reforestation and rehabilitation; reduced income from mono-cropped agriculture to reforestation and agroforestry areas;

Table 23. Summary of associated sustainable livelihoods co-benefits and trade-offs of REDD+ pilot project activities.

| REDD+ activities/ Capital assets | ANR | Reforestation | Agroforestry | Forest protection |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| Human | -/+ | -/+ | -/+ | +/ - |
| Natural | + | + | + | + |
| Financial | - | - | +/ - | - |
| Physical | - | +/- | + | - |
| Social | +/- | +/- | +/- | +/- |

5.4.3 Local stakeholders adherence to REDD+ Social and Environmental Safeguards (SES)

REDD+ safeguards are a set of principles, rules and procedures put in place to achieve social and environmental goals (Roe et al., 2013). It also pertains to the potential risks and benefits that will be derived from REDD+ implementation that need to be addressed and protected. The evolution of REDD+ safeguards led to the birth of 2 main principles that differ in terms of purpose and objective, the "do no harm" and "do good" proponents. The "do no harm" focus on the mitigation of risks associated with the climate change mitigation goal of REDD+. While the "do good" proponents have a balance of carbon emission reduction and improvement of welfare of forest communities and biodiversity in order to gain legitimacy. The Philippines REDD+ implementation subscribe to the "do good" principle in that it targets poor forest communities and biodiverse forest.

The 3 year implementation of REDD+ pilot project provides some preliminary insights on the adverse impacts and risks associated with REDD+ implementation. The challenges and trade-offs that arise from REDD+ pilot implementation form part of the safeguard system that need to be addressed for local communities to pursue their livelihood objectives. The local institutions like DENR PENRO and CENRO and the LGUs represented by the PENRMO have devise strategies in addressing the identified adverse impacts and risks of REDD+. Table __ presents the key issues and risks associated with REDD+ implementation and the strategies and actions of the local institutions composed of YISEDA and its members, LGUs (PENRMO), and DENR (CENRO and PENRO). These are the current key actors after the REDD+ pilot project terminated in 2013. These are important contribution to the study concerning REDD+.

The major key issues and challenges facing REDD+ implementation that should be addressed under the Philippine REDD+ social and environmental safeguards are as follows :

- The stricter conservation goals of REDD+ may lead to forest (carbon) enclosures.

Forest enclosure is the condition that may result when forest conservation and protection goals the government related to REDD+ implementation became too restrictive for local people to benefit from and pursue their livelihood objectives. Access to the utilization of forest resources will become limited. Harvesting of mature timber of CBFM-POs will be constrained by overly strict policies thereby depriving local communities to economically benefit.

- REDD+ enhances natural capital over the other capital assets.

REDD+ is designed to enhance forest carbon stocks, evident in the Philippine implementation (Lasco, Pulhin, Bugayong, & Mendoza, 2011). In the assessment of REDD+ impacts to sustainable livelihood, REDD pilot project is concentrated on enhancing the natural capital formation while leaving very little (or no) room for enhancing other capital assets like human, financial, physical and social. Although the future benefit of REDD+ as envisioned will be the cash income, at present readiness pilot project it did not contribute to increasing household's income. Also, with the desire to increase forest carbon stocks part of the cultivated farmlands especially in steep slopes are planted under the reforestation and ANR project activities that led to a reduction in crop harvest and farm income. This could have been remedied if a simultaneous alternative income source have been placed from the start. The cash compensation for CBFM-PO members who rendered labor work in reforestation, rehabilitation and ANR is not sufficient to sustain the needs of the family. Furthermore, financial gains enjoyed during project implementation is short-lived, hence, sustainable livelihood objectives may not be realized. The absence of sustainability plan for people's livelihoods is critical for REDD+ full implementation.

- The high degree of optimism of local stakeholders for REDD+ is misplaced.

Local stakeholders show very little knowledge when it comes to REDD+, most especially the local communities. The benefit of cash income generation could encourage greater public participation. Unknowingly, there will be a lot of trade-offs that will confront them. A good example is the reduction of farm area devoted for farm cultivation to give way for the project activities. There are two (2) scenario on this, cash income will decline due to low harvest while after project termination the farmer will clear the same area and increase crop production. At present, there is no assurance that the same optimism will be sustained during REDD+ full implementation because there is very little information relayed to local communities on its development. The bigger issues on the local implementation of REDD+ are not yet at hand, it remained hidden until a full disclosure on how and what contains REDD+ implementation in the country has been defined.

- Strong local stakeholder's collaboration and commitment is needed for REDD+.

The Philippines cannot deny that forest degradation and deforestation problems still happen in the uplands, most especially in CBFM areas. A strong collaboration and commitment of local

institutions to address the problem is critical for REDD+ to succeed. The formation of the Southern Leyte Provincial Technical Working Group (PTWG) is reflective of commitment toward forest protection and conservation for it not only addresses issues related to REDD+ it now covers forestry-related issues in general. At the readiness pilot project stage, sustainability of this council is threatening its existence. The LGU is working to sustain the council and allotted annual budget for convening a meeting/assembly among the different stakeholders.

In addition, LGUs strong commitment to REDD+ is reflective of its support systems to CBFM-POs in the province. YISEDA received assistance to pursue their livelihood through the sari-sari store establishment (small business/enterprise). They also received skills training for furniture making in preparation for the 2nd harvesting operation once the pending RUP have been approved.

- The attractiveness of mature timber is enticing the illegal loggers.

The ultimate challenge of REDD+ in the future is how to convince local implementers (PO members) to maintain REDD+ areas. Mature harvestable timber attracts opportunistic buyers, illegal loggers as well as CBFM members to harvest even without the appropriate permit issued by the DENR. An opportunistic leader of CBFM may find a way to lead the organization into illegal timber harvesting (without permit to harvest). This is already happening in the CBFM area recently. Three (3) cases of illegally cut logs/lumber have been apprehended by the DENR-CENRO from YISEDA vicinity which accordingly are owned by YISEDA members. Buyers allegedly transacted business with some members, providing them chainsaws to fast track harvesting of mature timber. The 3 cases have been filed to the Regional Trial Court after the DENR-CENRO conducted an investigation and ___ at their level.

Some members attributed their eagerness to do illegal harvesting to poverty and lack of livelihood sources in the community. Also, the presence of speculators and buyers of logs are tempting some members to do illegal activities. REDD+ implementors need to safeguard this kind of threat, which practically involve CBFM-PO themselves into committing illegal activities. Hence, the assurance of achieving sustainable livelihood in REDD+ areas is very important.

- REDD+ may perpetuate the failures of CBFM

The three decades of CBFM implementation in the country is regarded by many as a failure in the forestry sector (Pulhin et al., 2007). This is because the initiative failed to accomplish the

rehabilitation of the targeted 5.97 Million hectares of denuded forest lands (Pulhin et al., 2007), but instead managed to rehabilitate only 600 000+ hectares (or 6.7%). The physical indicator of CBFM success in the past is not sufficient for the local communities implementing CBFM because the program failed to include the livelihood needs of the local communities. Although CBFM policies and strategies have been revised to suit the existing condition, somehow its failures can be traced to the absence of sustained income of local communities.

The continuing poverty and the lack of available alternative sources of income from PO projects led to the declining participation of members to PO activities. Ever since the development projects were promoted in the organization, members looked forward to participate in the activities. Hence, participation is dependent on project funds. Pulhin *et al*. (2007) refers to this condition as "project mentality" developed from CBFM implementation due to over dependence on income generated from project activities. This is the major drawback of externally funded projects observed in the past, which exists until today. Volunteer work or the "*bayanihan* system" that once defined YISEDA's success is replaced by the economic incentives compensated by the project funds. After REDD+ pilot project, member's willingness to do volunteer work subsided. There are only a few who can be tapped to conduct patrol work without the promise of economic incentive. Basically, all the challenges mentioned above are also the issues confronting CBFM implementation until now. These challenges and failures may perpetuate with REDD+ if left unheeded.

## 5.5 Conclusions

This chapter highlights the assessment made by YISEDA members and local institutions working on CBFM/REDD+ on the effects of REDD+ pilot demonstration project to sustainable livelihood, identification of co-benefits and trade-offs, and social and environmental safeguards adherence. Findings revealed that the natural capital asset is continuously improving with REDD+ readiness initiative. Local people highly regarded the assisted natural regeneration and reforestation activities' effectiveness in reducing carbon emissions. However, REDD+ activities could only cater to short-lived improvement in the financial capital of members, while indirectly benefiting human, physical and social capital assets.

The 3 year span of REDD+ readiness may not have brought much impacts on maintaining the balance between environmental and economic sustainability. Promises and potentials soon to be achieved with REDD+ may be too overwhelming for local stakeholders which have brought REDD+ at the forefront. However, local participation in REDD+ is project-based, short-lived, hence, livelihood capital assets sustainability is a major concern. This has considerable implications in addressing the

illegal forest activities even if there were positive impressions on achieving the REDD+ goals, because income and its sources remained unsustainable.

The associated risks prevailing in the REDD+ pilot project implementation that should be guarded pertains to forest enclosure for stricter policies on forest management that eventually deprived forest communities of benefits; the need for a strong collaboration and commitment of local stakeholders; vulnerability of REDD+ areas to illegal loggers and speculators; and the perpetuation of failures of CBFM, giving little attention to sustainable livelihood objectives. Forest conservation policy like REDD+ may still be embraced fully by local communities if livelihood capital assets were enhanced.

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1. Change in organizational leadership gave equal opportunities for members to lead the organization especially those who criticize the organization the most.

## Chapter Six

### Vulnerability of Community-based Forest Management to Climate Variability and Extremes: Emerging Insights on the Contribution of REDD+

The paper "Vulnerability of Community-based Forest Management to Climate Variability and Extremes: Emerging Insights on the Contribution of REDD+" co-authored with Juan M. Pulhin and Makoto Inoue has been accepted for publication on September 24, 2016 by Small-Scale Forestry journal and is awaiting further instruction from Springer (publisher) on the details of the publication including transfer of copyrights.

## Chapter 7

### Implications of REDD+ implementation to Forest Governance

This chapter, to integrate the result of all the chapters, will be submitted to academic journal in 2028. It will be published in three years.

## Chapter 8 - Conclusions and Policy Implications

### 8.1 Conclusions

CBFM and REDD Plus are equally important initiatives in addressing climate change policy. CBFMs goal is social equity and sustainable forest management, while REDD+ aims to achieve triple benefits – carbon emission reduction, biodiversity conservation and sustainable development. REDD+ is envisioned to build on the process and potential outcomes of CBFM. Soliciting the views of local stakeholders most especially the CBFM-POs on the impacts of CBFM and eventually REDD+ on sustainable livelihood using the sustainable livelihood framework was employed. The study also determined the vulnerability of CBFM-POs to the impacts of climate change. Lastly, the national forest governance implications of on-site REDD+ implementation was determined.

Findings of the assessment of CBFM impacts as presented in Chapter 4 revealed that CBFM contributes largely to building the livelihood capital assets of the PO, although improving financial capital remains a challenge. The over-all condition of the forest, land and water resources improved in YISEDA but not in MUDSA. YISEDAs forest conservation activities led to the revegetation of the entire CBFM area. Meanwhile, the declining natural capital asset in MUDSA is due to human abuse and climate change impacts. Moreover, both CBFM-POs show natural capital assets declined with respect to access, control and amount of resources traditionally harvested. Likewise financial capital asset in the case study sites declined with CBFM implementation. The livelihood strategies introduced with CBFM intended to improve the condition of living did not contributed to improving income and its sources. Full positive effects of CBFM have to be realized for the financial and natural capitals. Access and control over the resources are key factors toward more meaningful implementation of CBFM.

Chapter 5 revealed the high optimism of local stakeholders towards REDD+ implementation especially evident on enhancing the forest carbon stock and short-term financial gains from the pilot project activities which is not sustained after project. Over-all findings suggest little to no contribution of REDD+ pilot project to sustainable livelihood. The pilot project focuses attention on forest carbon stock enhancement, benefiting natural capital formation. Access and control on forest resources diminished while compliance to forest policy increased. Meanwhile REDD+ have indirect contribution on enhancing the human, physical and social capital asset of members and its households. There is very

high association of the natural and financial capital assets with REDD+ pilot project activities.

The associated risks prevailing in the REDD+ pilot project implementation that should be guarded pertains to forest enclosure for stricter policies on forest management that eventually deprived forest communities of benefits; the need for a strong collaboration and commitment of local stakeholders; vulnerability of REDD+ areas to illegal loggers and speculators; and the perpetuation of failures of CBFM, giving little attention to sustainable livelihood objectives. Forest conservation policy like REDD+ may still be embraced fully by local communities if livelihood capital assets were enhanced.

Meanwhile, Chapter 6 highlights the vulnerability of CBFM-POs to climate change impacts. This chapter estimated the vulnerability index of two CBFM communities and compare the degree of their vulnerability by elaborating on the impacts of CBFM to sustainable livelihood and insights on the contribution of REDD+ in reducing such vulnerability. The study found out that the livelihood vulnerability index is a useful tool to estimate the climate change vulnerability of households. This study departs from earlier work as it showcases the vulnerability of upland CBFM-POs through the estimation of vulnerability index using context-based indicators. While findings may not necessarily reflect conditions in other CBFM areas in the Philippines and in other countries, similar studies may be done to cover a range of differential vulnerability to climate change impacts in CBFM areas to be used for climate change adaptation planning and prioritize support to the most vulnerable.

Both CBFM sites are highly vulnerable to climate change impacts. But MUDSA is slightly vulnerable than YISEDA mainly because of its exposure to disasters and climate variability and extremes, and accessibility to health facilities and water. The contributing factors of vulnerability using the IPCC framework between sites show similar pattern, which also reflect MUDSA's high exposure to climate change impacts followed by its sensitivity and adaptive capacity. The long history of CBFM implementation in both POs have minimal contribution to the adaptive capacity of members to cope with and adapt to climate change impacts.

Current livelihood sustainability dilemmas coupled with vulnerability to climate change impacts haunt CBFM implementation, even for POs that are performing well, such as YISEDA. The sustainable livelihoods approach, which was advocated for in the early stages, has not been put into practice. REDD+ readiness may not assure the current reduced vulnerability of CBFM communities, but the livelihood strategy established at this stage will contribute to the achievement of sustainable livelihoods

in the long-term. Whether sustainable timber harvesting could be a viable long-term livelihood security option for CBFM now or in the future is uncertain. If the State continues to exercise full control over the forest resources, particularly timber, undermining the rights of CBFM-POs to commercially benefit from these resources, the reaction of the latter will continue to challenge new and viable development programs located in CBFM areas, such as REDD+. In effect, this will also continue to constrain CBFM implementation and the achievement of climate resiliency in the Philippine uplands.

Lastly, the existing condition of forest governance in YISEDA CBFM is reflective of their adherence to the principles of transparency, accountability, coordination, capacity, participation and equity. YISEDA have shown high to very high level of performance for these principles. YISEDAs high commitment to forest conservation and protection initiatives is consistent with their acceptance of the attach role and responsibility of forest stewards embodied in the CBFM policy. They have shown high levels of coordination, capacity and participation to all project endeavors. However, their strong coordination/collaboration with local stakeholders like the LGUs, PENRMO, and DENR is not match by the stakeholders in the higher echelon of REDD+ governance.

## 8.2 Policy Implications

CBFM as a national strategy aims to democratize access to resources and has targeted the rehabilitation of degraded forestlands. If REDD Plus will build on CBFM success, it will be crucial for the government to assess the viability of the 1,888 CBFM areas in the country using the SLF. The on-going evaluation of the 25 years of ISFP could be an opportune time to assess its contribution in enhancing the livelihood capital assets of the households. Most CBFM areas today are former ISF areas that were later converted into CBFM. Even with three decades of CBFM implementation in the country, only a couple of CBFM project/areas have undergone impact assessments. The corresponding differential impacts of climate change to CBFM also varies which calls for a more appropriate adaptation strategy. Hence, it would be of paramount importance to assess overall impacts of CBFM on the livelihood capital assets and on the vulnerability of CBFM household to climate change impacts.

REDD+ may still be at its infancy in the Philippines but the local stakeholder's perspectives are important considerations in the design of the set of strategies that will be implemented in CBFM areas. Also, the identification of the associated risks to REDD+ implementation are considerations in the development of the country's REDD+ social and environmental safeguards. Soliciting the views of

local stakeholders is important to ensure that it does not only contribute to mitigation of climate change, but also strict adherence to social and environmental safeguards is observed.

Policies implemented in CBFM areas have been too restrictive to a point that PO members develop distrust among its DENR counterpart. "Forest enclosure" is a threat foreseen by local stakeholders that may be developed with REDD Plus. Considering the enormous amount of money expected from REDD+ ( Lasco et al 2012), the State through the DENR may impose stricter policies limiting access, control and use of resources over forest carbon stock enhancement, thereby depriving local communities of benefits in the process.

REDD+ may perpetuate the failures of CBFM. The three decades of CBFM implementation in the country is regarded by many as a failure in the forestry sector for non- accomplishment of the targeted 5.97 million ha of denuded forest lands (Pulhin *et al*., 2007). Alternative livelihood generation activities introduced are short-lived, CBFM-POs became over dependent on project funds and imbibe the "project mentality" thinking where participation to activities is dictated by the cash incentives; vulnerability to illegal forestry activities, etc. REDD+ safety nets through SES have to be installed to ensure that past failures will not perpetuate with REDD+.

Current livelihood sustainability dilemmas coupled with vulnerability to climate change impacts haunt CBFM implementation, even for POs that are performing well, such as YISEDA. The sustainable livelihoods approach, which was advocated for in the early stages, has not been put into practice.

REDD+ readiness may not assure the current reduced vulnerability of CBFM communities, but the livelihood strategy established at this stage will contribute to the achievement of sustainable livelihoods in the long-term. Whether sustainable timber harvesting could be a viable long-term livelihood security option for CBFM now or in the future is uncertain. If the State continues to exercise full control over the forest resources, particularly timber, undermining the rights of CBFM-POs to commercially benefit from these resources, the reaction of the latter will continue to challenge new and viable development programs located in CBFM areas, such as REDD+. In effect, this will also continue to constrain CBFM implementation and the achievement of climate resiliency in the Philippine uplands.

REDD+ success may not materialize using the project-based approach as accountability of concerned stakeholders particularly the CBFM people organizations ended after project termination.

Improvement on the capital assets will allow forest communities to better adapt to climate change, thereby reducing future vulnerability to climate change impacts. Likewise a balanced improvement of capital will not compromise emission reduction objectives.

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