

**YANGON UNIVERSITY OF ECONOMICS
MASTER OF DEVELOPMENT STUDIES PROGRAMME**

**THE SOCIOECONOMIC IMPACT OF COMMUNITY FOREST
MANAGEMENT IN MEIKTILA DISTRICT
(Case Study in Yoe Sone Community Forest, Wun Dwin Township)**

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This thesis is submitted to the Board of Examiners on partial fulfillment of requirements for the Degree of Master of Development Studies (MDevS)

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This is to certify that this thesis entitled “**The Socioeconomic Impact of Community Forest Management in Meiktila District (Case Study in Yoe Sone Community Forest, Wun Dwin Township)**” submitted as a partial fulfillment towards the requirements for the degree of Master of Development Studies has been accepted by the Board of Examiners.

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ABSTRACT

Community Forest Management is a natural resource management paradigm that actively participate local people in the protection and management of local forest resources. This study analyzes the socioeconomic impacts of community forest management implementation in Yoe Sone, Wun Dwin Township using descriptive method based on primary data and secondary data. Through the socioeconomic survey based on questionnaires and filed observation accessing income, expenditure and investment on assets of 50 randomly selected forest user group members. After implementation of community forest management in Yoe Sone, benefits from forest and forest resources had increased according to the income status, education and health etc. It is recommended to provide skill development trainings, financial and technical support to up-skilling products and enterprise. More study on assessing role of community forest management in biodiversity conservation should be conducted.

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LIST OF ABBREVIATIONS

ADB	Asia Development Bank
ASEAN	Association of Southeast Asian Nations
CBFM	Community-Based Forest Management
CF	Community Forestry
CFI	Community Forestry Instruction
CFUG	Community Forest User Group
CFUGs	Community Forest User Groups
CSO	Civil Society Organization
EU	European Union
FAO	Food and Agricultural Organization of the United Nations
FD	Forest Department
GDP	Gross Domestic Product
IFAD	International Fund for Agricultural Development
IUCN	International Union for Conservation of Nature
LIFT	Livelihoods and Food Security Fund
NGO	Non-Governmental Organization
NWFP	Non-Wood Forest Product
SDGS	Sustainable Development Goals
SFM	Sustainable Forest Management
UNDP	United Nations Development Councils

CHAPTER I

INTRODUCTION

1.1 Rationale of the Study

Forests and forest resources are at the very basis of life on earth. They constitute key components in a healthy environment and they are of critical importance to human and social development. (Jose' J. Campos Arce, 2019). (United Nations Forum for Forests, 2015), the UNFF recognizes that over 1.6 billion people depend on forests for subsistence, livelihoods, employment and income generation, and recognize that forests provide a wide range of goods and services, which create opportunities to address many of the most pressing sustainable development challenges. Forestry contributes to a nation's gross domestic product in both formal and informal economic sectors. Finally, all of the humanity depends on the world's forests.

The role of forests and trees are fundamental to people well-being and food security, people produce overexploitation and deforestation change forest cover areas. The direct cause of deforestation and degradation are the overharvesting of timber in way of both legally and illegally, overgrazing, agricultural expansion by growing population of the world and unsustainable forest management. Moreover, urbanization, and industrialization are another reason of deforestation. Forest degradation has also been a continuing problem for nations around the world, negatively impacting both the environmental and economic stability of communities especially for rural that depend upon forest. (World, 2000), (Balaji, 2002) and (Tewari, 2006). These problems are continuing occur and government only fail to solve. Therefore, government try the new approach of forest management as such, community-based forest management which eventually emerged as a paradigm for the prevention of wasteful use of forest resources and rural development in many nations around the world.

Community forest management has been recognized over the past two decades as a very potential approach for achieving forest sustainability. The solution for the problem of widespread forest degradation in nations around the world has been the development and implementation of Community Forest Management. Community

Forest Management attempts to provide for the sustainability of public forestry by incorporating local stakeholders into the planning, management, and protection of public forests (ROSSI, 2007). Community forest management is successful stories of green economy sectors and potential management for sustainable development and help to improve the socioeconomic outlook of the participants. Thus, community forestry has made lives especially rural lives more comfort in terms of providing forest resources for their daily livelihood and basic necessities (e.g., fuel, wood, timber, fodder etc..) and is a promising sector for social, environmental, and economic development.

Community forest management of Yoe Sone had become a very successful model of community based non-wood forest products enterprise in the Myanmar because of its improved livelihood and sustainable forest management. Before establishment of community forestry, it was a degraded natural forest and people are landless. This study aims to analyze the socioeconomic impacts of community forest management by comparing before and after establishment of community forestry including the income, demographic factors and education condition of local communities.

1.2 Objectives of the Study

The objectives are to expose the strategic plan of community forestry in Myanmar and to analyze community forest management impact on socioeconomic of the users of Yoe Sone Community Forest, Wun Dwin Township at Meiktila District, Mandalay Region.

1.3 Method of Study

This study mainly used descriptive method by using primary data from surveying target population were selected with simple random sampling and secondary data. All of the field survey in four villages of Yoe Sone Community Forest Area, Wun Dwin Township. The primary data are collected by using field survey with questionnaires to analyze impact of Yoe Sone community forest management in terms of household income, employment and demographic factors taken as socioeconomic background of the respondents. The major sources of secondary data are from forest department, previous research papers, reports and internet website.

1.4 Scope and Limitations of the Study

The study area focuses on the Yoe Sone Community Forest which located in Wun Twin Township. It is a successful community forest and very potential for sustainable development. The study was conducted on over 50 participants from 122 Forest Users' households in Yoe Sone Community forest to study the socio-economic consequences resulting from community forest management. The study was undertaken from August 2020. The study also focuses on secondary data and information from forest department and community forest user groups to cover the period from 2009 to 2019.

1.5 Organization of the Study

This thesis consists of five chapters. The first chapter is an introduction of the study, begins with the rationale of the study, objectives of the study, method of the study, scope and limitation of the study and organization of the study. The second chapter is literature review. The chapter three mentions community forestry in Myanmar context. The fourth chapter is formed by a case study on analysis on survey result. The final chapter consists of findings and suggestions.

CHAPTER II

LITERATURE REVIEW

2.1 Natural Resource Management

Natural resources are the greatest gift of nature on which the whole humanity entirely depends upon. The natural resources in the form of water and, energy, land, as well as materials are the basic essential life support system of all living beings on earth. Humans are also a part of nature and our survival and existence is unimaginable without the use of natural resources. Nature provides humans with all resources necessary for life: energy for heat, wood, cotton, food and pure water for a healthy diet. There are two major functions of natural resources. Firstly, it acts as a source function providing essential raw materials for the production of goods and services as well as environmental services. Lastly, it also acts as a sink function receiving waste originating from production and consumption- the waste being accumulated in nature (SHRESTHA, Women's Roles in Community Forestry Program: A case of Panchakanya Community Forest User Group of Nuwakot District, Nepal, 2017).

It is an absolute that without the constant mobilization of natural resources, neither economy nor society could function and flourish (Gilijum, 2009). Generally, natural resources are divided into renewable and non-renewable resources. Despite almost all of the resources are renewable in the long run, resources that are not renewed on the same time scale as other processes are considered non-renewable (Zeeuw, 2000). The most common classification of resources as cited in de Zeeuw (2000) are:

- i. Non-renewable and non-recyclable resources, such as fossil fuels
- ii. Non-renewable but recyclable resources, such as minerals
- iii. Fast renewable resources, such as fish
- iv. Slowly renewable resources, such as forests
- v. Environmental resources, such as air, water and soil
- vi. Flow resources, such as solar and wind energy

But the matter of fact is that these natural resources on the base of which human societies are built are in severe danger of overexploitation and collapse. With the rapidly

growing rate of world's population and the simultaneous increase of resource consumption in developed world and nations on the verge of rapid industrialization, the world's natural resources have come under great pressure and the situation has just worsened with the ever-growing demand. The extraction of natural resources for the production of goods and services is increasing every year for the growing population of the world.

The increased consumption of natural resources: energy, water and raw materials, rising production of waste and emissions, extensive human encroachment of land and many other problems have threatened the human's survival and earth's sustainability (Gilijum, 2009). European commission (2002) states that: When looking at resource management, two effects are thus of interest,

1. Depletion of resources. This concern in the first instance non-renewable resources, where use by definition will reduce the total stock and it may be a result of over exploitation of renewable resources.
2. Degradation of resources. The waste of consumption and production processes may degrade natural resources. As a result, a reduction in the level of physical and environmental services will result.

The rate of extraction and using of resources throughout the globe is and will continue to increase, unless measures are implemented to reduce the overall amounts of resource use. The growth will be more vivid in the developing countries as they aspire to have the similar kind of life-style as that of the developed world. The resources are being degraded and the quality of environmental services is on a worsening spree. Most of the non-renewable resources have already reached a peak of extraction and others are on the verge of extinction. The increasing global demand of resources on this limited planet will increase the competition and it could lead to the possibilities of serious conflicts related to access of resources in the near future. It is therefore, actions should be taken to move towards more sustainable use and management of natural resources for achieving the goal of sustainable development (Gilijum, 2009).

2.2 Sustainable Forest Management and Community Forestry

Food and Agriculture Organization (FAO) 2014 argues that the sustainable forest management (SFM) definition is, "Sustainable Forest Management (SFM) can be viewed as the sustainable use and conservation of forests with the aim of maintaining and enhancing multiple forest values through human interventions. People are at the

center of sustainable forest management (SFM) because it aims to contribute to society's diverse needs in perpetuity". The sustainability concept has been applied to forest management and, in fact, the term appears to have originated from a 1713 German forestry plan that managed the forest for long term productive use (Piasini, 2006).

Sustainable forest management (SFM) concept is a concept which has gained increased attention in forestry, and it has seemingly become a normative goal for all forest management approaches. Sustainable forest management that maintains and enhances the long-term health of forest ecosystems for the benefits of all living things while providing environmental, economic, social and cultural opportunities for current and future generations. Similarly, community forestry is a form of sustainable forest management, it is conceptually perceived to implement ecological-based forest management, create employment opportunities for community members, maximize benefits of forest values to a different and usually wider range of stakeholders, act as mechanisms to reduce conflict between stakeholders (Beckley, 1998), while achieving sustainability, fairness and efficiency (Hunt & Haider, 2001).

The nature of community forestry develops power to local people or give them an important role in forest management decisions, there are claims that management outcomes could "lead to greater levels of economic growth, environmental protection and community stability" (MCCarthy, 2006) according to its proponents. Further focus the needed capacity to adapt to risks and uncertainties of forest management especially at this situation when sustainability has become an objective for forest management. These point shows that sustainable forest management is closely connected with community forestry management.

There have strong linkages between forest issues and poverty. This is first explained by the strong linkage between poverty and forest users (those who are directly dependent on forest revenues) (Krott, 2012). This linkage is regarded as being two sided. One hand, poor people are more attracted to forest and its resources because there have several reasons firstly, throughout the history forests areas have provided shelter for poor people during wars. Secondly, until recently forestland and resources have been easily accessible. Without having access to employment, markets for selling goods or financial means for personal employment, forest resources offer a last opportunity for poor people to survive (Angelsen & Wunder, 2004), (Ogle, 1996), (Sunderlin, 2005). Next to that, the access to forest products is relatively uncomplicated. This is

due to the low thresholds of capital and skills for entry, and the easy access to the local market for selling these products (Food and Agriculture Organization, 1987). This is one part of the linkage. On the other hand, poverty and forestry livelihoods are linked by the limited possibilities that forest communities have to escape poverty. One reason for this is the remoteness of forest areas, providing limited access to infrastructure, markets, health services and education (Wollenberg et al, 2004). A second reason is the strong dependency of forest livelihoods on forest resources and limited opportunities for income diversification. Together with the lack of secure land or resource tenure, this dependency makes these livelihoods most vulnerable for external factors (Angelsen & Wunder, 2004), (Krott, 2012), (Ogle, 1996), (Sunderlin, 2005).

Another linkage between forest issues and poverty is the casual relationship between poverty and deforestation or forest degradation. Strong livelihood and socio-economic dependence on forest resources, which most poor forest users have, engender unsustainable use of forest resources and result in forest resource depletion. In turn, unsustainable use of forest resources cannot sustain socio-economic and livelihoods on the long term, resulting in enhanced poverty issues.

The forest's role that plays in the socio-economic and livelihoods of forest users are very context specific, as is the manner in which these forest resources are managed. The willingness and capability of forest users to manage forest resources sustainably is determined by their dependency on and the access to these forest products. Therefore, analyzing the impact of community-based forest management on rural livelihoods and socio-economic require an understanding of the role forests play in these livelihoods and socio-economic.

2.2.1 Impact of Sustainable Forest Use and Incentives on Economics

The forest sector has an enormous potential to forest the transition to a greener and more sustainable economy that could bring economic, social and environmental development, throughout the sustainable management and conservation of forests and the sustainable utilization of the diversity of products and services they provide. By using the water forests play an essential role in growing cycle and part of this energy is transformed into wood, food, fiber and several other non-wood forest products and biomass that provide essential environmental and social values and services.

This would need to put even more emphasis on an economic development path that is inclusive, low in carbon emission, and pursued in a manner that address

responsible production and consumption. Traditional forest products such as wood and non-wood product, timber and paper, are already a major economic sector and driven by global demand. Raising demand for wood and non-wood products lead to place high pressure on natural forests. Therefore, balancing the increasing demands for land, forests, and trees through sustainable forest management will be critical for ensuring remaining and new forests are managed effectively to balance multiple objectives pertaining to timber production, social outcomes and environmental concerns. This will require governments to develop locally appropriate and effective policies, and governance structures to support sustainable forest management planning and implementation, incorporate local needs and enforce regulations and the proactive engagement of the private sector and blended finance (Jose' J. Campos Arce, 2019). Sustainable forest management offer potential for high quality employment both direct and indirect.

2.2.2 Community Forestry in Theory.

“Development from below” approach is a new concept of development to replace “Top-down conventional development model”. This new approach can fix the failure of old model to meet the needs of the poorer people of the world. In this model, people themselves make planning, decision-making and problems identification.

People are the main part of the community forestry because the underlying principle of the community forestry is that the people who use the forests should also manage them. Local people manage more and more, forests become more and more healthier and usages of forest resources become more ecologically sustainable. Therefore, community forestry is the control, management and use of the forest resources by the forest users. Thus, this effective mobilization of local resources leads to local independence and sustainable development (SHRESTHA, Women's Role in Community Forestry Program: A Case of Panchakanya Community Forest User Group of Nuwakot District, Nepal, 2017). Community Forestry is on the basis of the participatory development and common property resource management (SHRESTHAN, 2002). Forest and forest products can bring positive changes in socioeconomic condition of the communities. Study the socioeconomic impacts of community forest management cannot be drawn without including the various aspects of community forest user peoples’ dynamics. There are many technical as well as social factors, which are inter-connected with economical ad social factors. The community

forest users' activities (planting acres, duration, maintain, collection, processing, trading, transportation, and manufacturing) can generate the income and employment in the society in on hand, it also creates the impacts on the social factors. Improved knowledge and practices, increased benefits to local people, improve health and environmental condition and improved economic well-being could be the impacts of socioeconomic setting.

2.2.3 Community Forestry in Global Context

Community forestry had been developed in the mid-1970s and the concept was introduced to control deforestation and to provision forest products to forest dependent communities (Arnold J. , 2011), (Gilmour & Applegate, 1985), (Mahat, 1986) and (Hausler, 1993). The availability of forest resources is often greatly reduced for use by the local people due to increasing pressures to cultivate the land, reliance on the forest resources and are also affected by economic and political changes (Arnold J. , 2011). The evolution of community forestry in Nepal dates back to the late 1970s and was first instilled as an attempt to improve the management of forest resources and address environmental issues that were of great concern with the countries failing with centralized forest policy (RamP. & EddieB, 2010). The Conference held in 1985 on Common Property Resource Management organized by United States national Academy of Sciences provided another major stimulus to the move towards a greater degree of local involvement in forest management. Collective management of forests by user groups was shown to be viable and appropriate in certain circumstances (National Acaedemy of Sciences, 1986).

After passed the two decades, many developing countries practiced community forestry and community forestry has been successful in its aims of sustainable forest management, climate change adaptation and securing socioeconomic benefits and land tenure for local communities (Nirmal Kumar Paul, 2011). In a global context, community forestry is seen as a forest management alternative that maximizes the provision of forest benefits by safe-guarding the environment, improving economic welfare and enriching the social fabric of the community (Sands, 2005). Community forestry can take many different forms such as community-based forest management, joint forest management, collaborative management, etc.

2.3 Community-Based Natural Resource Management

The fate of natural resources is mainly dependent on the harmony between the local people and local natural resources (UN, 2010). However, at current, the harmony between these two is weakening at the cost of population growth and over-exploitation of resources, which has questioned the lives of future generations. This perception has led the concept of natural resources' sustainable management.

Given this sort of population-natural resources nexus, community-based resource management (CBRM) is gaining humongous popularity as a welcome alternative to solving problems and difficulties arising from the overexploitation and conservation of natural resources as well as it has been emphasized as a viable strategy to meet the goals of sustainable development (Fellizar, 1994), states that, "community-based natural resource management is an approach through which communities are given the opportunity and responsibility to manage in a sustained way, the community resources, define or identify decisions affecting their common well-being as determined by technical, socio-cultural, economic, political, and environmental factors. It is a tool that facilitates the development of multilevel resource management skills vital to the realization of the potentials of the community. Also, community-based natural resource management stands for people-empowerment for achieving equity and sustainability in natural resource management".

The key concepts and elements of community-based natural resource management are: community, resources, management, access and control over resources, proper resource use, viable organization, and availability of suitable technology for resource management and utilization. Under it, communities benefit from the sustainable use of natural resources and community-based natural resource management programs. The incentive of participation depends on to what extent these people really feel, accept and are able to assume responsibility or accountability for protection and management of natural resources (Laban, 1995). Laban et al (1995) states that people participation in natural resource management activities only when:

- i. They see clear tangible benefits (products, services or income)
- ii. They have necessary competency (knowledge, technology).
- iii. It is based on local indigenous knowledge.
- iv. There is a guarantee of using products and services.
- v. There is unobstructed access, and property rights over resources.

- vi. Individuals' interests are backed by strong local organizations. Increase people's claim is making capacities towards Goal of NGOs

But the effectiveness of community-based natural resource management will not be assured by only known the key concepts, elements and principles. Therefore, Fellizar (1994) points out some conditions that must assured for community-based natural resource management to be effective which are:

1. The strategy must be strongly tied on people's needs, which may be obtained from assessing the threats and opportunities in the community environment.
2. The strategy must accord with the capacity of the community to carry it out and if it doesn't exist, capacity may have to be developed.
3. The inputs-technical, financial and educational, to the community must be compatible with the needs, strategy, and the actual or potential capacity of the community to implement the project.
4. The strategy must be people-centered including the inputs-technical, financial and educational. It is necessary for the capacity-building in the community.

The Community-Based Forest Management in the Philippines among Asia countries, Philippines is one of the pioneers in the implementation of the nationwide Community-Based Forest Management strategy. The Philippines's Community-Based Forest Management is emerged as the result of various factors. One of the major factors was the excessive forest and environmental degradation that the Philippines was facing (Rebugio et al). Philippines saw the heavy disappearing of the total land area of forest cover from 92% in 1575 to 24% in 2003. From 1950s to 1973, the exploitative practice led the annual deforestation rate as high as 172,000 ha (hectares). Moreover, under the regime of Marcos from 1970-1980, the annual deforestation increased to as high as 300,000 hectares making the Philippines on the top lists of the countries with the worst deforestation rate in the Asia pacific region. Another factor was the inequitable access to forest resources as well as the benefits.

Before Community-Based Forest Management, the Philippines's forest management was highly centralized and only a privileged few benefited more unlike the millions of people living uplands who depend on forest for their subsistence.

Acknowledging the importance of people's roles in forest management, executive order No. 263 was issued and community forestry program was launched to democratize the access to the forest resources as well forest protection, which later came to be known as community-based forest management or CBFM. Later, CBFM was

adopted as a national strategy in 1995 in order to achieve the dual goals of sustainable forestry and social justice. As per the order, people are allowed to acquire long term tenure rights to forest land and resource use permits from DENR under the provision that they use the environment friendly, ecologically sustainable and labor-intensive techniques. The communities from a people's organization (PO) under Community-Based Forest Management representing a particular project along with the other stakeholders. Various practices being performed by communities under CBFM are like agroforestry, timber harvesting, and animal rearing and so on (Rebugio et al).

The Community-Based Forestry Management strategy in the Philippines has been considered as a new approach with the following policy objectives:

1. Uplift the socio-economic condition of the communities;
2. Promote social justice and equal access to the benefits from forest resources to all including the indigenous communities;
3. Promote sustainable use forestlands and resources; and
4. Make the environment of the country better for healthy lives of people (Pulhin, 2007) as cited in (Rebugio et al).

2.4 Challenges of Community Forest Management

Managing community forests with multi-stakeholders has its own set of challenges, which can hinder the ability to reach the many positive potential benefits and effect community forestry can promote. Challenges that community forests need to overcome are power relations, conflicts and capacity of the communities which are challenges to ensure effective and efficient management of the forest for increased community benefits.

2.4.1 Power Relations in Collaborative Management

Power relations among multiple stakeholders are the challenge to discussed of governance in community forestry. The role of power plays as a central part not only in the collaborative management processes also among participation people because it is capable of ultimately changing relationships among stakeholders within the participatory process. The power to manage and impact decisions about forests is the key motivator for people to get involved in forest management and way to increase participation people in forest management, given the prospects of more share decision making with state forest agencies (Hoverman & Buchy, 2000).

The power in shaping management practices and outcomes, the influence of power in outcomes of decisions and power balance among representatives in the collaborative setting as important issues that need to be assessed critically in the context of community forest management are pointed by Reed and McIlveen (2006). The reason is the complexity embedded in collaborative management can result in power being a decisive factor in the success or failure of collaboration (Keen & Manhanty, 2005). Moreover, the economic status or interest of community members can determine their representation by themselves as stakeholders in forest management (Reed, 2010). Reed 2010 concluded that the forest advisory committees were the preserve of elites and community members with an economic stake in the forest resource. In a situation where a few representatives hold a lot of power because of their wealth or status in society, collaborative management can be hijacked to suit the needs and interests of these elites over the broader community, thus defeating the purpose of the collaboration.

2.4.2 Conflicts within Community Forest Management

Major source of conflicting among various stakeholders is power within a community forest management setting. The emergence of community forestry can cause conflict between a section of the community that sees the approach as a potential for ensuring economic benefits and stability, and those that perceive it as impediment to large scale logging. Such divergent views can therefore serve as a recipe of polarization within the community.

People among those who are in support of the approach, the extent to which their interests are represented can also be a major source of conflict within communities, in the case that representation does not highlight and exhaust the various value, interest and social structure of the community (Stedman & Parkins, 2003). However, the extremely great number of community interests in the forests makes it difficult to recognize and incorporate all of them, and therefore presents a major challenge in identifying stakeholders to fully represent all interests (Duinker, 1994), (Clark, 2002). In such a situation, it can be argued that because some interests are being sacrificed, conflict becomes unavoidable things among interest groups of the community forests.

In 1998, Beckley said that integrating completely opposite interests in a single management approach could make the community forest difficult to manage, and therefore attempts at integrating could undermine the community's ability to achieve

its goals. Therefore, (Bullock & Hanna, 2008), call for a pluralistic and accountable representation in the community forest management process, if community forestry is to realize its potential of resolving value and belief conflicts.

However, community forest management's conflicts are not necessarily destructive. Among conflicts, some can challenge the status quo and processes of management to yield innovative and better ways of management in line with community interests, because conflict could "indicate process weakness, reveal aspects of a decision that need reconsideration, bring new information and perspectives to the fore, or reveal inequity" (Bullock & Hanna, 2008).

2.4.3 Capacity of Communities in Community Forest Management

Centralized management system, the shift from top to down forest management to greater community involvement in management looks appropriate based on the potential community processes. However, delegation of power to communities to manage the forest for their benefits also points that communities must assess the extent of their capacities to realize such goals. Capacity building for practical site-level management and for managing or negotiating larger processes of land use planning can make the success of community forestry (Bullock & Hanna, 2008).

Assuming forest-dependent communities' capacity that do not have well-diversified economies will find it difficult to increase their capacities to manage the forest to their advantage. It means that community forest projects where external pressures such as unsupportive provincial government policies and lack of start-up funds resulted in inactions by some communities two years after they had been awarded community forest pilot agreement. Thus, there were low capacity among some of the piloting communities to start their activities after they gained autonomy to manage the forest, leading them to rely largely on volunteers, which resulted in burn out among such people. So, a successful community forest management need state assistance with community capacity building and maintenance.

Thus, communities need to build capacity in order to responsive to the surprising events they may be confronted with regarding forest management. Without strong community capacity, managing the forest for three benefits (ecological, economic and social benefits) will be difficult.

2.5 Forest User Group

The forest user group is an institution based on the concept of “common property”. The forest user group is known common property resource institution that is group of people share specified use right. The forest user group (FUG) is focus subject of Community Forest, which recognizes local user right and practices to considerable extend (Gilmour: Fisher, 1991).

Community Forestry planning process prescribed four separated phases to form Community Forest or Forest user group. Identification of Forest User Group is the first phase of Community Forest handover process. In this process, the field staffs within the village determined the real users of a particular forest by discussion and checking. Community Forest Extension workers need to debate more time with the forest users in this phase. The process also identifies Socio technical information about the use of forest and Community Forestry area (Joshi, 1995). The negotiation phase is the second phase of Community Forest process. In the negotiation phase user group is formed, their need and problems are identified and discussed on the problem and issue and find the solution themselves with the assistance of Department of Forest Organization’s staff. And in this second phase they prepared constitution of group and operational plan of forest. During the preparation of constitution, they formed one executive committee is called Forest User Committee (FUC) on the basis of consensus or voting mechanism of forest protection, management and utilization are mentioned in the operational plan and Forest User Group (FUG) is responsible to implement these. The Forest User Group have total right to fix price of their forest products, they can use forest products for their collective benefits and use surplus income in forestry development as well as community development work. These authorities can be practiced in a way that should not be affected on sustainability of forest.

Third phase of Community Forest process is the implementation phase that includes carrying out approved forest management activities by the Forest User Group (FUG). Last phase of this process is the review of operational plan at the request of Forest User Group (FUG) of expiry of the operational plan after five years. It is continuous process because the first two phases are concerned with the formation of Forest User Group and the rest two are concerned with the strengthening of the Forest User Group (Karki, 1994). In agreement with (Lamichhance, 2000) through the Community Forestry Program following rights are given to the Forest User Group:

1. Any part of the forest can be handed over to Forest User Group who is traditional users of the forest irrespective of the political boundary.
2. There is no limit of forest to be handed over as Community Forest to Forest User Group that depends upon their willing and capability.
3. Forest User Group must be registered at District Forest Office with their constitution and manage the Community Forest according to their operational plan approved by District Forest Office.
4. Forest User Group can freely fix price, transport and market ad forest products from Community Forest.
5. Forest User Group can grow long term cash crop applying inter cropping system inside the Community Forest.
6. Forest User Groups allowed establish forest-based industry that can be run with the raw material yielded by Community Forest.
7. Forest User Group utilize the fund generated through the sale of forest produce in a development work but amendment of Forest Act 1993 make compulsion to utilize 25% fund in forest management work.
8. Forest User Group can take action to the members of Forest User Group who break the rule of the constitution or operational plan.

In terms of function there are two basic types of groups: expressive and instrumental. Expressive groups are formed initially for the purpose of the individual relating to each other. Instrumental groups are formed to reach a specific goal. Forest User Groups are combination of both of these types. It is primarily a task oriented (instrumental) group. It is designated to manage forest. To achieve their goals, forest users become close well-knit members of community (Lamichhance, 2000).

2.6 Review on Previous Studies

Natural resources are the valuable gift of nature on which the whole humanity entirely depends upon. But, the overconsumption of these natural resources of the growing population of world can occur many dangerous problems on the human's survival and earth's sustainability in the future. Natural resources are limited but the human wants and desires are unlimited which can face scarcity, lack of resources for sustainable production and consumption. Therefore, resource management actions should be taken to move towards more sustainable use and management of natural resources for achieving the sustainable development.

Sustainable forest management that maintains and enhances the long-term health of forest ecosystems for the benefits of all living things while providing environmental, economic, social and cultural opportunities for current and future generation. Community forestry is a form of sustainable forest management, it is conceptually perceived to implement ecological-based forest management, create employment opportunities for community members, maximize benefits of forest values while acts as mechanism to achieving sustainability, fairness and efficiency. With the paradigm shift in forest management, decentralization emerged as a very effective way, giving local community the authority to manage the forest. (SHRESTHA, Women's Roles in Community Forestry Program: A case of Panchakanya Community Forest User Group of Nuwakot District, Nepal, 2017). Communities themselves form a group and manage, utilize as well as protect the forest, call them as community forest user groups. Various researches and reports have shown that the community forest management projects and programs being conducted across the globe under decentralization system have had positive results and effects in many countries.

Forest and forest resources are very related with rural economy, they supply fuel, wood, fodder, timber, medicines and other sources of daily necessities. They are the major sources of income generation through forest products in the rural areas and by providing basic necessities for people can also save cost. Similarly, not only timber forest products but also non-timber forest products which are in high demanded products in outside the country, has also created the economic opportunities to the local people. Green forest can provide environment and people health.

The study of (Subedi et al, 2001) was related to community-based enterprise initiatives for generating economic opportunities and conservation of forestry resources at local level. The study assesses factors and dynamics that lead to the development of such enterprises as well as relative efficiency of existing enterprise modalities in realizing development goals of sustainable and equitable economic development. The study was focused on community-based enterprises, and eliminated the branches of large companies established at the rural/community level from the scope of the study. For the purpose of the study, community-based enterprises are defined as those being operated at rural areas, usually near resource base that supplies raw materials, and that are planned and operated by local communities or individuals who are also the main beneficiaries of the enterprise.

Another study was related to community forestry role in rural India peoples' socioeconomic by (ROSSI, 2007), this work provides an economic and institutional analysis of joint forest management as applied in Andhra Pradesh, India. For the objectives of this study, to analyze the influence of demographic, economic, bio-physical, and institutional factors on the economic and the institutions of community forest management as implemented in Andhra Pradesh. As a final objective, identifying the structural strengths and weaknesses of the community forest management institutions based on the findings of above objectives.

The study of (Phyo Thu, 2014) was related to figure out the socioeconomic impacts of community forestry on the livelihood of local communities which practiced different implementation approaches on livelihood strategy of forest user group members in two cases of community forest implementation of dry zone, Myanmar. This study confirmed that when communities are given more power in decision making process in community forest implementation stage, the communities participate more actively, gain more benefits from alternative livelihood activities and their level of livelihood become higher.

The study of (Zin Zin, 2019) was related about community forestry practices in Myanmar. This study provides the role of community forestry in Myanmar. To restore forest cover in the country and to improve the agricultural productivity in Myanmar, government is attempting to improve agroforestry practice throughout the country. Community forestry is a kind of agroforestry operation that is currently implemented in Myanmar and it is a successful policy around the country by fulfilling domestic requirement, local basic needs, environmental protection

Based on various studies and researches, community forest management program seems to have had a mutual beneficial on the environment and forest-dependent peoples. Household economy of the rural people has been increased and other social and demographic were changed.

CHAPTER III

OVERVIEW ON COMMUNITY FORESTRY IN MYANAMAR

3.1 Forestry Sector in Myanmar

Myanmar is one of the countries situated in Southeast Asia and rich in hug varieties of natural resources, both renewable and non-renewable. It largely depends on agricultural sector, this sector comprising proper agriculture, livestock and fisheries, and forestry sector. These sectors contribute to more than 50 percent of the country's gross domestic product (2015) and about 30 percent of the export earnings (2015). Although forestry sector's contribution to the national gross domestic product is about one percent (FAO, 2015), time export alone constitutes about 10 percent of the total export. Myanmar's external trade, like other developing countries, has also to rely on exports of primary products from natural resources including those of forestry. It also contributes to meeting and providing forest product demand of the nation domestic use and plays as the main sources of the bio-energy in Myanmar such as providing firewood, charcoal.

In Myanmar, insufficient electric power supply and limited provision of household fuel gas lead to continued use of fuelwood and charcoal. As for income generation charcoal production is conducted for money-making purposes in various regions of the nation. Forests are also known as major sources to generate basic needs and necessary income for people especially for poor. The contribution of the forestry sector to the poverty reduction and rural development planning process is not adequately recognized. About 75 percent of the population lives in the rural areas and 10 to 75 of the livelihoods of the population lives in the forests' vicinity, is met from the forest. Depending on the economic status of the households, the forest provides:

1. Food;
2. Fodder for their livestock;
3. Medicines for household use and livestock;
4. Materials for construction of dwelling units and for livestock sheds;
5. Products for use or sale in the market;

6. Material for supporting agriculture, such as fencing material or for agricultural implements;
7. Fuelwood and timber for own use and sale to generate income;
8. Bamboo and rattan for own use or sale or for manufacturing items for sale in the market; and
9. Fruits and flowers, honey and wax etc.

In this way Myanmar forestry sector significantly contributes to the national economy by supporting the livelihoods of a large section of the rural population and by stabilizing the environment and water resources, which ensures viable agriculture on which the economy of the country is based (MYANMAR: National Action Plan for Agriculture, 2016).

Employment creation is another important contribution by forestry sector. Forest creates various works ranging from collecting fuelwoods to producing logs (either legally or illegally) reduces unemployment. Forest related work can give job opportunities for both skilled and unskilled labourers. Myanmar's forests have most significant attraction in tourism development for the nation's service sector through ecotourism. It has huge potential for ecotourism promotion, encompassing dense forests, various of floral and fauna, snow capped mountains, long sandy beaches, etc. Fifteen ecotourism sites are prescribed by the Ministry of Forestry in Myanmar (Khin Htun, 2009). An important but less visible service provided by forests is water resources protection. Water resources are vast important for people living and its quality and flow are highly influenced by the forest's status. Myanmar forests' another major important task is safeguarding the environmental harmony.

Over the past years the forests have become much degraded and degradation of forest cover continues. The future trends for Myanmar forestry sector are determined by demographic changes, economic transition, environmental issues and future energy demand. More than one percent of forest land has been degrading every year since 1980. The major reasons of deforestation and degradation are overconsumption of increasing population and natural disaster. They are threatening the food security of the rural poor and environment of the country and it never stop always increasing year after year. Since 2010, Myanmar's forests cover area has lost more than 546,000 hectares (over 1.3 million acres) on average each year. According to a report of United Nations Food and Agriculture Organization (FAO), the annual loss of forest between 2010 and 2015 was 1.3 million acres, or 2 per cent of the country's trees on each year and 3695 acres

for each day and 354 acres for each hour and then forest has lost 2.6 acres for each minute. So, Myanmar had the third-highest annual rate of forest reduction, just behind deforestation-plagued Brazil and Indonesia by a report of the Global Forest Resources Assessment 2015, released on September 7. Reducing forest cover and degraded land contribute to rural food insecurity and present challenges for long-term community development and poverty alleviation.

3.1.1 Institutional Structure of Forestry for Conservation of Forest and Environment

Ministry of Natural Resources and Environmental Conservation (MONREC) is recently reformed for conservation of forest and environment. There are two sectors under the MONREC; Union Minister Office (Forestry/Environmental) and Union Minister Office (Mining). Among these two sectors of MONREC, union minister office (Forestry/Environmental) takes a leading role in coordination of following department and deals mainly with policy matters and issues related to forestry and environmental conservation.

1. Forest Department,
2. Dry Zone Greening Department,
3. Myanmar Timber Enterprise
4. Environmental Conservation Department
5. Survey Department
6. University of Forestry and Environmental Science

Forest department is responsible for protection and conservation of biodiversity and sustainable management of forest resources of Myanmar. It performs the production and protection functions in balancing way based on the 1995 Myanmar forest policy. While trying to mitigate climate change through sustainable forest management, forest department has been making its best efforts to meets the basic needs of local people.

Dry zone greening department is responsible for reforestation of degraded forest lands, protection and conservation of remaining natural forests, and restoration of the environment in the dry zone of central Myanmar. The specific aim is to implement greening of the Central Dry Zone of the Myanmar.

Myanmar timber enterprise is state owned enterprise which has legal right of commercial harvest of timber. Myanmar timber enterprise is responsible for milling, marketing and export of timber and its products.

Environmental conservation department is a new department founded in 2012. It is responsible for implementing natural environmental policy, strategy, framework, planning and action plan for the integration of environmental consideration into the national sustainable development process. This department is also responsible the environmental management for the sustainable environment.

Survey department is responsible for topographic mapping throughout the whole country and carried out boundary demarcation works in cooperation with neighbouring countries. University of Forestry and Environmental Science is responsible for providing educational service and conducting researches relating to forestry and environmental science.

3.1.2 Myanmar Forest Policy, Plan and Strategies

The Myanmar forestry policy today, was evolution from 1995 Myanmar forestry policy. 1995 Myanmar forest policy has been formulated in a holistic and balanced manner with the overall context of the environment and sustainable development taking full cognizance of the forestry principle. The forest policy was formulated with a holistic content and formalized the commitment and intent of the state to ensure sustainable development of forests and forest resources for social, environmental and economic purposes. It is prepared for the way for long-term use and enhanced benefits from the forests while maintaining ecosystem integrity and environmental balance.

There are six imperatives identified in the policy:

1. Protection of soil, water, wildlife, biodiversity, and the entire environment;
2. Sustainability of forest resources to ensure perpetual supply of both tangible and intangible benefits accrued from the forests for the present and future generation;
3. Basic needs of the people for fuel, shelter, food and recreation;
4. Efficiency to harness, in the socio-environmentally friendly manner, the full economic potential of the forest resources;
5. Participation of the people in the conservation and utilization of the forests, and

6. Public awareness about the vital role of forests in the well-being and socioeconomic development of the nation (MONREC & and Forest Department, 2020).

The forest law responsible for setting the basic principle, management of forest land, conservation and protection, administrative actions, offences and penalties. The old 1992 forest law was repealed by the new forest law enacted in 2018, which revised and updated its responsibilities. The new forest law comprises nine basic principles and 58 section under the 13 Chapters, highlighting the constitution of reserved forests, and declaration of protected public forests, management of forest land, establishment of forest plantation, extraction and removal of forest produce, disposal of drift, stranded and waif timber, establishment of wood-based industries, administrative actions in respect of offences and penalties. The new forest law recognizes local and indigenous peoples' rights, encourages people participation in forest management, private sector involvement in forestry sector development, human resources development and extension to local people (MONREC & and Forest Department, 2020).

To emerge healthy and clean environment for long-term sustainable use, environmental conservation law was enacted in 2012. It mandates to form environmental conservation committee to conserve the environment of the country. The Ministry of Environmental Conservation and Forestry Department has been implementing the strategic policy for poverty alleviation and rural development programs, capacity building, research and development in forestry. Planning is the integral components of forest management and is for determining and expressing the goals and objectives and for deciding the targets and steps that should be taken in order to achieve those objectives. Forest department developed 30-years national forestry master plan (2001-02 to 2030-31) to manage the forest and forest resources on a sustainable basis (MONREC & and Forest Department, 2020).

National forestry master plan outlines the strategic direction for the sector and covers a range of issues, including conservation, restoration, protection, production, watershed management, law enforcement and the promotion of fuel substitutes. It provides a guideline framework for ten-years forest management plans developed by the forest department for each forest district around the Myanmar (MONREC & and Forest Department, 2020)

3.1.4 Community Forestry Instruction

In 2019, forest department replaced new community forestry instructions to replace the former 1995 community forestry instruction. In the new community forestry instructions, the specific objectives and definition for community forestry were clearly defined, the types of land that can establish community forestry were increased and the production from community forestry was considered not only for the subsistence needs of local people but also for the small scale to commercial scale enterprise. It focuses a significant development in the aspects of partnership, participation and decentralization. The local communities are granted trees and forest land tenure rights for an initial 30-years periods which is extendable (Forestry Department, March 2004). Community forestry instructions aims of fulfilling basic needs and agricultural materials and stabilizing the environment through protection of the soil, water catchments, ecosystems and biodiversity.

3.1.5 Legal and Policy Framework

In recent year, Myanmar's policy and legal framework that supporting Community Forestry are significantly change to promote sustainable economic growth and environmental development. January 2019, the three legal instruments are made directly reference and support the development of Community Forestry in Myanmar. The three legal instruments are Forest Law (2018), the Conservation of Biodiversity and Protected Areas Law (2018), and the Community Forestry Instruction (2016). In addition, there are a number of other laws relating land use administration, business development, financial and other investment that indirectly relate to Community Forestry that have the potential to hinder or support its development.

A policy framework is emerging that directly supports and guides the development of Community Forestry in the country. While more work needs to be done in some areas, what currently exists is promising and shows a firm commitment by the Government of Myanmar to community forestry and community forestry enterprises. There are a number of other policies relating to covering various sectors that also indirectly relate to CF that have the potential to restrict or support its development. Overall, successful community forestry need not only policy but also involves coordinating the effort of different participant such as local people, government, forest department staff, NGOs and project staff). They are together to initiate, sustain a range of activities: managing the protection of forests and sometimes planting of appropriate

species and coordinating harvesting and benefit sharing. In Myanmar, the forest sector plays the important role and primarily source of livelihood, social and economy. Forestry contributes to more than 50 percent of the country’s GDP and about 30 percent of the export earnings. Although the forestry sector’s contribution to the national GDP is less than 1 percent, timber export alone constitutes about 10 percent of the total export. And the most significant attraction of forests for the service sector is tourism development through ecotourism (Htun, 2009).

3.2 Types of Forest in Myanmar and Forest Area

Myanmar has various types of forests which vary in species composition and stand structure, and constitute a valuable ecosystem due to their wide extent, varied topography and different climate conditions. There are six major forest types in Myanmar. Six major forest types and their respective areas are shown in table (3.1),

Table (3.1) Forest Types of Myanmar

No.	Major Forest Types	Hectare (ha)	% of Forest Area
1.	Mangrove Forest	325,259.20	1.12
2.	Tropical Evergreen Forest	5024,093.00	17.30
3.	Mixed Deciduous Forest	11,093,662.00	38.20
4.	Dry Forest	2,904,100.00	10.00
5.	Deciduous Dipterocarp	1,237,146.60	4.26
6.	Hill and Temperate Evergreen	7817,837.20	26.92
7.	Scrub and Grass Land	638,902.00	2.20
	Total Forest Area	29,041,000.00	100.00

Source: Forest Department (2015)

According to the table (3.1), Myanmar’s land area is covered by 29,041,000,00 hectares of forest area. The majority of the forest area is covered by mixed deciduous forest, hill and temperate evergreen forest accounting for 38.20 and 26.92 percent, respectively (MONREC & and Forest Department, 2020).

The following table (3.2) shows the change of forest cover status in country,

Table (3.2) Change of Forest Cover Status in Myanmar 2018-2019

Year	Forest Cover Area (sq-mile)	Change of Forest Areas (sq-mile)	Forest Cover Area (% of total land area)	Change of Forest Area (%)
2008-2009	125067	1196	47.88	0.95
2009-2010	123872	1195	47.42	0.96
2010-2011	122677	1195	46.96	0.97
2011-2012	120567	2110	46.15	1.72
2012-2013	118457	2110	45.34	1.75
2013-2014	116347	2110	44.54	1.76
2014-2015	114237	2110	43.73	1.82
2015-2016	112127	2110	42.92	1.85
2016-2017	110018	2109	42.11	1.88
2017-2018	107898	2110	41.30	1.96
2018-2019	107898	2110	41.30	1.96

Source: Forest Department

According to the table (3.2), Myanmar' forest covered areas in 2008-2009 was 125,067 square-mile which is 47.88 percent of Myanmar's total land areas. In 2009-2010 forest covered area was declined to 123,872 square-mile, 47.42 percent of total land areas of the country. Myanmar forest lost 19% or 7,445,000 hectares at the end of 2010 and forest covering as much as 70% of country but in 2014 forest cover area is reduce to 48% of the total land area. Since 2010, country lost forest cover area about more than 546,000 hectares (over 1.3 million acres) of forest on average each year by a report of United Nation's Food and Agricultural Organization. Near or more 2 percent of the country's forest cover has been lost each year, or 8.5pc over the five years by based on 2010 levels. There has been a significant decrease in forest area by 7.29% between the year 2008 and 2016. The reasons were natural disasters such as cyclone Nargis destroyed a lot of trees in 2008 and infrastructure development and growing population density are strongly associated with forest area decreasing.

In 2005, forest area covers about 49.25 percent of total land area of Myanmar after five years 46.96 percent (2010) cover by reducing rate and in 2017/2018 country's forest cover area is 41.3. So, deforestation is always increasing in each year but the

country's population who depend on forest are extremely raising. The report of Global Forest Watch noted that the Myanmar's forestry sector directly employs some 36,000 people and contributed US\$254 million to the nation economy. Therefore, if deforestation rate is increasing per annum nation will struggle in developing processes and fail to meet environment balance.

Myanmar's 30.9million hectares of forest comprises44.2% of the country's land area of 167,189,030 acres (67,659,000 ha). Other wood lands account for another 23% of its land area. Between 2010 and 2015 Myanmar had the third largest forest loss by area in the world, losing net 546,000ha per year between 2010 and 2015—a 1.7% annual rate of loss (FAO, 2015a). Myanmar's annual forest area is loss about 1.7% and tend to loss continuously in the future because population is increasing and natural resources are limited. The estimated deforestation in Myanmar vary widely among different sources.

3.3 Community Forestry in Myanmar

In Myanmar, community forestry officially began in 1995 through issuing of the CF instruction by the Ministry of Forestry. It represents a significant policy to support sustainable forest management in the country. The establishment of community forests under the community forestry instructions has aimed both to conserve the forest and to reduce local poverty through the sustainable use of community forest and resources. 1995 Myanmar forest policy implicitly highlights the role of people's participation and public awareness in a way of efficiency of the forest can truly bring basic needs of the community through protection of the soil, water catchments, ecosystems and biodiversity.

The forest department has taken the lead in the implementation of community forest program and the very first community forestry initiative was established in 1995. At the end of 2017, a total 3,323 community forests covering 94,417 households and 472,079 acres have been established. (MONREC Forest Department, 2018). The details by state and regions are shown in table (3.3) The master plan for the forestry sector mandates that 2.27 million acres should be under community forestry by the year 2030 (Ministry of Natural Resources and Environment Conservation Forest Department, 2018). At current time, Forest Department in collaboration the local people implemented three participatory afforestation programs: Departmental village supply plantation, Community forest plantation, and Household development plantation.

Forest Department defined community forestry as “Community Forestry means all sustainable forest management and utilization activities, in which the local community itself is involved”. In this expression, “establishing new plantations and managing existing forests” are included to create employment opportunities and income opportunities from subsistence to commercial purpose, to generate food, to stabilize ecosystem and to improve the environmental conditions.

The forest management type in Myanmar is State owned national forests with the sub categories of Reserved Forest (RF), Protected Public Forests (P.P.F), and Protected Area System (P.A.S). Their targets are to establish 30 percent of the total land area as Reserved Forest and Protected Public Forest and 10 percent as Protected Area System. In sustainable forest management, role of community has been recognized by authorities of the Forest Department.

Community Forests can establish the following areas: reserved forest with the permission of Government, private land, degraded natural forests, environmental conservation areas which suitable for community forests, forests which are higher local demand for forest products, forest lands traditionally and customarily managed by the local community. The Community Forest land lease period is 30 years. (Columbia, 2019). Most of Community Forestry implementation can see in Shan state, Mandalay, Magway and Ayeyarwady Divisions. The reason of most Community Forestry implementation is located in these areas where severe deforestation and fuel shortage have been a prevalent and persistent problem.

Further examination of the same source reveals that nearly 80% of them (26,432 out of 34,006 ha in total) have been implemented in joint cooperation with UNDP/FAO community development projects operated over the past 10 years. Moreover, other international organizations, NGO/INGO for example, the Japan International Cooperative Agency (JICA) and the Action Mangrove (ACTMANG) have become increasingly involved in supporting for Community Forestry Initiatives special focus area is Community Forestry in the Ayeyarwady Delta of Myanmar (Mangrove Service Network 2002). These outside supporting has influencing in Forestry Department’s capacity and resources for Community Forestry Initiating by limiting of Forestry Department’s capacity and resources within the department and raise the question of the genuine commitment of the department itself.

The Forest Department has implemented the Community Forestry and promoted its initiatives and met local socioeconomic needs as in Community Forestry's definition, thus:

- i. Afforestation of areas where there is no sufficient fuelwood or other forest products for community use and/or
- ii. Planting of trees and exploiting forest products to obtain food supplies, consumer products and incomes (Tint, 1995).

1995 Community Forestry Instructions (CFI) are very potential for local communities to supply basic livelihood needs together with sustaining reforestation areas. This also give the real rights to communities to have equitable use of forest. March 2019, areas of Community Forestry increase to 614,579 acres (248,711ha) that are certified by the Forest Department, participating 4,707 forest user groups covering 119,355 households. This Community Forestry growth has been the result of its legal and institutional foundations strength. In these foundations the emphasis on livelihood and CFE development (for example, revision of the CFI in 2016, CF Strategy 2018–2020, and Forest Law 2018), recognition of CF in building resilience of rural communities to climate change, (Myanmar Climate Change Strategy and Action Plan, 2016–2030 [MCCSAP]), and integration in multi-sectoral land use management and governance initiatives (such as land Use Policy, 2016, Myanmar Reforestation and Rehabilitation Program, 2017–2027 MRRP) are include as institutional foundations in Community Forestry Growth. Therefore, Community have the opportunity to make substantive returns on their investments so they are actively involved in Community Forestry and thus play an active role in the value chain.

Table (3.3) Community Forestry of Myanmar Established and Areas 2018

State and Region	Community Forest Acres	Number of Community Forest
Kachin	21,357	51
Kayah	5,530	44
Kayin	6,419	37
Chin	9,209	222
Sagain	36,713	692
Tanintharyi	27,968	54
Bago	86,729	235
Magway	98,707	612
Mandalay	20,237	203
Mon	368	21
Rakhine	23,180	259
Yangon	3,419	40
Shan	102,967	524
Ayeyarwady	17,999	202
Naypyidaw	11,278	127

Source: Planning and Statistics Division, Forest Department (2018-2020)

According to the table (3.3) Shan state has established the most community forests with a total area of 102,967 acres recording the highest community forests coverage among state and regions of Myanmar, while Mon state has the least community forests coverage with 368 acres only. All community forests implementation in Shan state have been granted certificates by Forest Department but it was not in Mon state. Based on the data from Forest Department: Community Forestry Strategic Plan (2018-2020), the distribution of community forests established across the whole country pointed Sagain region among other regions and states where has highest in number of community forests totaling 692. The lowest state which could have implemented 21 community forests only is the Mon State. Because all community forests in Shan state have been granted certificate. All CF members (FUGs) actively participated and cooperated in Community Forestry activities so all Shan state's Community Forest get sustainable development and number of forest user groups

(FUGs) are increasing more and more. But it not like Shan state, community forests initiating in Mon state.

3.4 Organizations and Institutions Implementing Community Forestry

In the process of community forestry's implementing has typically involved a partnership between local communities, the Forest Department (FD), and donor-supported projects.

i. The Forest Department

In 1906, the forest department which was formally constituted. The community forest instruction was issued by forest department and this department is the main institution responsible for community forest's implementation. The forest department comprises 557 officials and 14,591 support staff making a total of 15,148 staff members (Anon, 2003). They also have a separate division or section specifically tasked with the community forestry responsibilities. Rather district-level forest department's staffs mobilize and sensitize the community and establish community forests in their areas.

As with many countries, adapting to the new policy has been a major challenge to the forest administration. Community Forest's implementation has required a change in working practices; both in terms of providing the technical services for formation (awareness raising, forest boundary delineation, mapping; inventory, management planning and establishment support, paperwork regarding application for certificate); as well as post-formation support.

Forest department set vision, mission and value of community forestry in Myanmar. Vision of forest department for community forestry is to be a lead participatory forest management option contributing to alleviation of poverty, community empowerment, social equality and sustainability of forest resources. Mission is to establish and long-term healthy and resilient community forest and promote profitable, community forest enterprises across the country for the achievement of the lives of the poor communities and environment.

Values of community forestry are the democratic political processes, social inclusion and supporting national reconciliation, right-based local government and local resource management., respecting and promoting citizen livelihoods, promoting democratic national and regional policy development and specified objectives

particularly relating community forestry and transparent, accountable, cooperative across stakeholders.

ii. Dry Zone Greening Department

The Dry Zone Greening Department (DZGD) was established in 1997 with the main responsibility for taking all necessary measures to prevent and check the degradation of the harsh environment of the Central Dry Zone of Myanmar. The majority of this department's activities are implemented through community participation and community forestry. The department comprises 137 officials and 3,094 subordinate staff to make a total staff of 3,231 members (Anon, 2003).

iii. Training Centers

Forest Department together with JICA implemented Community Forestry Training and Extension (COMFORT) project from 2004-2005 to 2005-2006 which aims to raise the capacity of the staff of the forest department and dry zone greening department. COMFORT project was stationed at Patheingyi and was an extension of the Central Forestry Development Training Centre (CFDTC), Hmawbi. A total of 25 trainings were conducted during the project period (2004-2006) and 424 forest staffs from different levels were trained. Although the project had come to an end, Forest Department is still continuing with training. Moreover, community forestry is also taught as part of the course on Social Forestry at the University of Forestry, Yezin. (Tint, Springate-Baginski, & Gyi, 2011).

iv. Non-Government Organizations

Not only the major institutions mentioned above but also a number of NGOs, namely Ecosystem Conservation and Community Development Initiative (ECCDI), Forest Resource Environment Development and Conservation Association (FREDA) and Economically Progressive and Ecological Development (EcoDev) has also been establishing community forests. Among the international NGOs, CARE Myanmar has been promoting community forestry under its household-level rural livelihood security project in Northern Rakhine State since the mid-1990s.

v. Forest Users' Groups

The Forest Users' Groups (FUGs) are the key local institutions in Community Forestry. Forest Users' Groups are Community-based organizations (CBOs) which establish and manage community forests (CFs). They are the on-site manager of forests surrounding them whilst their daily life and forest resources are tightly coupled together. However, from a review of existing literature, observations and discussions with stakeholders there is a clear consensus that the Forest Users' Groups (FUGs) are suffering from a number of limitations:

- i. Many of the Forest Users' Groups are not properly aware of the Community Forestry Instruction and community forestry. They have not been adequately trained in this context.
- ii. Generally, Forest Users' Groups are too weak technically. They need various technical trainings such as planning, reporting, accounting and book keeping.
- iii. Basically, they are hand to mouth people with limited resources; therefore, they need early returns for their subsistence or livelihood support to participate in the establishment of Community Forestry (CF). It will be difficult for them to wait for 5 or 6 years to benefit from the forests.
- iv. They need to follow-up support from Forest Department (FD) both technically and legally. They need legal support to protect the forests, forest land and their rights and opportunities.
- v. Currently, most of the management committees of Forest Users' Groups do not include any village administration personnel. The inclusion of local authority in the management committee will lift its status and facilitate management.

Table (3.4) Households' Participation in Community Forest User Groups 2018

State and Region	Number of Community Forest User Groups
Kachin	2,741
Kayah	2,511
Kayin	542
Chin	2,305
Sagaing	7,897
Tanintharyi	1,976
Bago	3,545
Magway	19,671
Mandalay	10,223
Mon	203
Rakhine	8,182
Yangon	1,794
Shan	23,517
Ayeyarwady	6,984
Naypyidaw	2,326

Source: Planning and Statistics Division, Forest Department (2018-2020)

According to the table (3.4) the number of households involving in Community Forest User Groups by State and Region. It shows that Shan State is the place where has the highest forest user group population accounting 23,517, being closely followed by Magway Region with 19,671 total households. Mon State has the lowest community forest user group members with 203 only.

3.4.1 Impacts of Community Forestry on Rural Livelihoods

Generally, the effect of community forestry on livelihoods and community well-being are complex, varying, according to household, gender, occupation skills, whether individuals are members or non-members of the community forestry, the rules relating to access to forest resources, the location of the community forest and the state of the forest and the resources of the community forest itself. The positive effects of the community forestry on households, community and environment are following way

1. Improved household food access,
2. Secured land tenure,

3. Availability of natural safety net,
4. Higher income and household consumption,
5. Enhanced community cohesion,
6. Creation of job opportunities,
7. Promotion of ecotourism,
8. Enhancement of women as decision-makers,
9. Soil protection and nutrient cycling,
10. Protection from natural disasters,
11. More secure natural water supplies,

Various studies have confirmed that community forestry members can acquire more income from selling non-timber forest products. Community forestry members in the Ayeyarwady Delta earn about 36 percent of their household income from selling small timber while the non-member households achieve only half of that number of percent (Thin Thin Moe, 2019).

3.5 Dry Zone in Myanmar

Dry zone is situated in central portion of Myanmar covering more than 54,000 km and encompassing 58 township which span from lower Sagaing region, to the western and central parts of Mandalay regions and most of Magway region. It includes 3 divisions, 13 districts, and 57 townships. It consists of hilly areas and reaches to the central plains and the majority of people as elsewhere in Myanmar, are engaged in agricultural activities but unlike in other parts of the country, paddy cultivation is impossible without irrigation. Dry zone has very harsh climatic conditions receiving limited rains and extremely high temperature compared to country averages. It has a long dry season of six months from December to April with highest temperatures rising over 43° C in day time. The central dry zone of Myanmar is an important agriculture area of the country, largely producing major cash crops like sesame, bean, pea and groundnuts.

Traditional toddy farming is also common in the region supporting regular and major income for rural families (Ba Kaung, 2006). Myanmar's dry zone is also supporting about half of the national cattle population. Forests in dry zone, Wundwin township, Meiktila district are mostly dry and thorn forests and the trees are mainly xerophyte which is a species of plant that has adapted to survive in an environment with little water, because of dry and poor soil. Due to low rainfall and poor soil fertility in

this area, the growth rate of forests and trees is very slow and the existing forests are also very sparsely distributed. Trees species in dry zone can be distinguished as prominent tree species and economics tree species.

Viewing socioeconomic status of dry zone in Myanmar, local people especially who living in rural areas of dry zone are extremely poor and facing great hardships (Ba Kaung, 2006). Most villages have no electricity and poor transportation to towns. They have to spend nearly half of day time just to fetch enough fuel wood, fodder and water (Ba Kaung, 2006). Local people have to depend on forests and forest resources for their daily use and for selling fuelwood. This situation creates the degradation of natural forest resource. Many of the local people are also largely depending on livestock farming. They usually practice free grazing that is not in a specific area for grazing and it is free to graze everywhere in dry period, when there is no agriculture (Phyo Thu, December, 2014). There are always conflicts among livestock, agriculture and forestry including community forests. Damage of planted trees and seedlings by overgraze is quite usual and sometimes the plants are destroyed on purpose. Dry zone area is one of the fast degraded land areas in Myanmar and local people in this area have to depend on forest for the fuelwood and livelihood activities.

The major purpose of establishing community forestry in dry zone is to rehabilitate the degraded forest land, to support local basic needs and rural livelihood with the secure land tenure of 30 years. The duration of land lease for the establishment of community forest is set initially for 30 years in community forestry instructions and it can increase after 30 years.

Table (3.5) Plantation Establishment in the Dry Zone (ha) (1994-95 to 2004-2005)

No	Year	Sagaing Division	Mandalay Division	Magway Division	Total
1.	1994-95	931	2389	3097	6417
2.	1995-96	1,477	2,489	3,359	7,325
3.	1996-97	1,295	2,550	3,735	7,580
4.	1997-98	1,439	1,748	4,717	7,904
5.	1998-99	3,086	4,881	6,313	14,280
6.	1999-00	2,966	5,144	6,070	14,180
7.	2000-01	2,964	5,130	6,333	14,427
8.	2001-02	2,023	2,914	5,913	10,850
9.	2002-03	1,862	3,318	4,856	10,036
10.	2003-04	1,416	2,804	4,399	8,619
11.	2004-05	1,214	1,827	4,654	7,695
12.	2005-06	1,133	2,516	4,452	8,101
	Total	21,807	37,709	57,898	117,414

Source: Dry Zone Greening Department (1994-95 to 2005-2006)

According to the table (3.5), dry zone greening department established forest plantations in deforested and degraded areas in Sagaing, Mandalay, and Magway division to restore forest cover and rehabilitate the environment. The total area planted between 1994-95 and 2005-06 has reached about 228,142 acres. In the fiscal year 2019-2020 a total of 557.422 acres (2256.7 ha) of forest plantations are being established (Dry Zone Greening Department, 2019).

CHAPTER IV

FOREST USER GROUP MEMBERS FROM YOE SONE COMMUNITY FORESTRY IN WUN DWIN TOWNSHIP

4.1 Background Profile of Yoe Sone Community Forestry

Yoe Sone Community Forest is situated within about 8 miles from eastern part of Taungyigone Reserve Forest Compartment, in townships of Mandalay region namely Wun Dwin township. Yoe Sone Community Forest is located in central dry zone of Myanmar. As the meaning of dry zone, this region has very harsh climatic conditions receiving small amount of rain and extremely high temperature. Local people living there usually dependent upon the forests for their daily use such as fetching fuel wood, fodder, livestock feeding and water. According to poor climatic conditions and highly dependent on forest and forest resources, forest department has been emphasizing on forest restoration and rehabilitation activities on that area through social and natural approaches of forest managing including establishment of community forestry. In the past Yoe Sone forest is degraded forest and people are landless and daily-wage laborers before establishment of community forestry.

Yoe Sone community forestry was implemented as the practice of agroforestry type in 2004 and in 2005 it was certified as a community forest. The total number of forest user groups households increase from 84 to 122 (2020) from nearest four villages Yoe Sone, Thabyaythar, Kyouthargyi Kwin and Padamyar Thukha and the total area is 222 acres of which 192 acres are agroforestry areas (Facility, 2017). It had become a successful model of the Myanmar forest management because of Yoe Sone forest user group members are the training output of community forestry training and extension project jointly organized by dry zone greening department assisted by Japan international cooperation agency technically. The main tree species planted in agroforestry system within Yoe Sone community forest is Shaw Phyu (*Sterculia versicolor*) mixed with agricultural crops such as sesame, bean, cotton, green gram and ground nut. Therefore, agricultural crops and resin from Shaw Phyu tree are the products of Yoe Sone community forestry. Shaw Phyu tree is a native and it can be

tapped for resin extraction for commercial purposes at five years old according to its natural habitat. In that area resin tapping tree is traditional for personal's use therefore at first most of the local people were not interested in community forest and they also believed that this is a long term investment process and can harmful to their livelihoods.

However, the chairman of the Yoe Sone community forestry started a good initiative of agroforestry system on community forestry land area allotted from forest department by growing together with Shaw Phyu (*Sterculia versicolor*) and agricultural crops. After 7 years, the *Sterculia* gum (resin product) could sell to China since there is a market condition and good prices for resin products, subsequently the household daily income of chairman increased significantly. Due to his success and good leadership, other members of the community forest have also followed similar agroforestry system in their community forest areas and non-members also tried to become members of the community forest to get income by selling their resin products to China. In this way, their annual income from selling resin products in local market and foreign market have been increased. Nowadays, resin from Shaw Phyu tree become the income source according to the short term income generating capacity. Also, the reputation of Yoe Sone community forest eventually covers with higher revenue and greening vegetation on degraded dry forest by the effective participant of user group members.

In 2017, Yoe Sone community forest got National Globe Energy Award Myanmar for improved livelihood and sustainable natural resource management through community forestry. It becomes the successful model of Myanmar's community based non-wood forest products enterprise and it also has the best image and fame among Community Forest in Myanmar.

As the environmental impact of community forest, after 3 years, households within community forest area could using plenty water by digging over 100 feet into the ground. Nowadays, every households in Yoe Sone Community Forest Area own water well in each household. All households in that area still rely on Solar for electric. In the past, there has no school in that area so educational level of this area was very low and they only depended on village's Monastery for read and write skills. At 2001, they can open primary school under the Government permission and later village can upgrade primary school to middle school at 2018.

4.1.1 Topography, Climate and Environment

Types of soil found widespread in Yoe Sone area are sandy loam soil and some place of South area are Gone soil. Topsoil situation is very good in most area but a little flat in hills which mix with stone and soil.

The Climate of this region is dry so the Yoe Sone Community Forest area is dry zone area. The maximum temperature is 42 HC and minimum temperature is 20 HC and average 32 HC. The annual average rainfall is maximum 40 inches, minimum 14 inches and average 25 inches. These areas receive monsoon for two months from September to October which months give highest rainfall.

Forest Type is dry-forest, in past, Inn, Inngyin, Pyinkatoe, Lattpan, Thann and Myin Bamboo could see in forest but in current years they are very difficult to see and most place of Yoe Sone area are cover by Hpone soe law and Kyauukyaw Fields. This area is highly suffered from deforestation and its negative impacts.

4.1.2 Demographic Characteristics of the Respondents in Yoe Sone Community Forest Area, Wun Dwin Township

Out of total 122 households, 50 households were taken as random sample of this study. Table (4.1) shows the gender of respondents,

Table (4.1) Gender of the Participants

No	Sex of Participation	Number of Participants	Percentage
1.	Male	28	56%
2.	Female	22	44%
	Total	50	100%

Source: Field Survey (2020)

The data from the table (4.1) shows, female participated in Sustainable Community Forest User Groups (SCFUGs) about 44 percent and 56 percent is the rest percentage of male participation. The role of women in Yoe Sone community forestry related activities is active and there has not been discriminated to take part in the activities of community forestry being woman by their husband and other male member from their home. Because the percentage difference between female (44%) and male (56%) is not high. Moreover, a female whose husband are pass away is called widow can take her husband place in community forest user groups and she can act as like her husband before died. Community forest acres of one person can transfer from

generation to generation. It is no matter person's generation is female or male, there no discriminate between them.

Age distribution of the household sampled in Yoe Sone Community Forest Area is as follows: the table is divided into six sections has been grouped by below 21, 21-30, 31-40, 41-50, 51-60 and above 60 gradually, shown in the table (4.2).

Table (4.2) Age Group of the Participants

No	Age Group	Number of Participants	Percentage
1.	Below 21	1	2
2.	21-30	1	2
3.	31-40	2	4
4.	41-50	20	40
5.	51-60	20	40
6.	Above 60	6	12
	Total	50	100

Source: Filed Survey (2020)

Table (4.2) shows that most of individuals (80 percent) participated in sustainable community forestry were between the age group of 41 to 60, followed by 12 percent of above 60 age group. Moreover, table 4.2 also shows 4% were between the age group of 31 to 40 and less of the individuals (4%) participated were between the age group of below 21 to 30 means that participation in the community forestry from the new generation is very rare. Forest User Committee has tried to integrated the people of all age group. However, participation of people below the age group of 21 from 30 is very slim because most of them are busy in their study or still working under of their parents. Family size is a major factor that affects the movement of people's participation in community forestry activities which can large the size of community forest.

Table (4.3) Family Size of Participants from Community Forest User Group

Village	Unit	Family Size				Total
		At least 3	4-6	7-9	Above 9	
Padamyar Thukha	Numbers	2	12	1	0	15
Kyouththargyi Kwin	Numbers	3	6	0	0	9
Yoe Sone	Numbers	2	8	1	0	11
Thapyaythar	Numbers	3	10	2	0	15
Total		10	36	4	0	50

Source: Field Survey (2020)

The data of table (4.3) shows the family size of participants of four villages which involved in Yoe Sone Area. According to this data, Padamyar Thukha and Thapyaythar village has maximum number of participations in Community Forestry and Forest User Groups household than the other two villages: Kyouthargyi Kwin and Yoe Sone. Among four villages in Yoe Sone area, Kyouthargyi Kwin has low participation and less household than three villages. Data for family size shows most of household has family size range between 4-6. Family size is an important factor that affects the movement of people participation in community forestry's activities. Number of family size plays a major role to the active participation in Community Forest Management and activities. Small family size can loss chance because the allocation of CF acres is depending on the family size. Moreover, Housing Situation of Participants.

Table (4.4) Housing Situation of Household Participants

Size of House			Types of Housing			
	One Floor	Two Floor	By Wood	By Wood and Brick	By Brick or Cement	Wall/ Zinc
Household	35	15	25	11	4	10

Source: Field Survey (2020)

The table (4.4) shows the housing situation of households in Yoe Sone area. By studying the data in above table can learn there has 25 households who live in wood housing, 11 households are lived with housing which are made by wood and brick, 4 households lived with cement building and 10 households lived with wall/zinc housing. Moreover, most household are living in one floor housing and some are living in two floor housing.

Table (4.5) Road Situation

Type of Road				Constructed By				Distance from Highway Road	
Stone Road	Myay Thar Road	Concrete Road	Other	Village	Government	District	Municipal	Near	Far
25	15	0	0	25	0	15	0	25	25

Source: Field Survey (2020)

Table (4.5) shows the road situation of Yoe Sone Community Forest Area. Road situation is good because most households get high income level so community can make their road situation to good. Most households are live near the highway road. Among participants there has 5 households which own car and 3 households whose possesses Htaw Lar Gyi for transportation and agricultural works. Moreover, households in Yoe Sone area are largely depend on forest and agriculture so there has large number of households which own farm's vehicles and equipment.

4.2 Survey Design

This study using quantitative case study research design and descriptive method. Similarly, this study primary and secondary data are collected to make this study more effective and authentic both primary and secondary data have been used as the sources of data. A sample 50 was selected from among 122 community forest user households is chosen simple random sampling method in Yoe Sone Community Forest Area at Wun Dwin Township. Primary data has been collected through structural questionnaires for respondents find out the condition in the study area. There are three parts in the questionners; part A is about demographic characters of respondents. Part B has 10 questions concerning the pre-condition and difficulties before establishment of community forestry in Yoe Sone and community forest management status. Part C is especially for the economic status of forest user groups members households after establishment of Yoe Sone community forestry.

On the other side, secondary data has been obtained from relevant literatures about community forestry related published books, scholarly journal, research report, journals, library, documents, thesis, internet and data from forest department. This include analysis on the condition of Yoe Sone community forest users, role of decision making, community forest management plan and system.

4.3 Analysis on Survey Results

The forest users' households of respondents for this include analysis on condition of forest users, analysis on Yoe Sone community forest management and improvement on socioeconomic status of Yoe Sone community forest users' households.

4.3.1 Analysis on condition of Yoe Sone Community Forest Users

Following table (4.6) shows the land ownership of forest user groups. In this area, none of the respondents' own land because they were daily-wage labours before establishment of the community forestry project and some are migrant to participate in this project.

Table (4.6) Forest User Groups Household Land Holding Status

Land Holding (acres)	Number of Household
1-5	37
5-9	2
9-13	9
13-17	1
17-21	1

Source: Field Survey (2020)

According to table (4.6), most household can hold their own land community forest acres after participation in this project. Forest users have right to transfer this land acres to their generation. They are not daily-wage labours anymore, they became land owner. Forest user groups from Yoe Sone community forestry had to spend their own money or made reinvestment for community forest establishment and sustainable development of community forest which is participatory approach. Most of expenditure were site preparing, seedlings, digging hole and, planting out for agroforestry in their community forest site and some hire labours for land preparation. This became a form of creating job opportunities for local people. At the producing stage, they cost to hire labours for tapping Shaw Phyu trees, collecting and cleaning Shaw Phyu gum. But the expenditure was differed by according to their community forest acres owned and outcome viss of gum.

The following table (4.7) shows the products of community forest and it was collected by forest user groups for their living.

Table (4.7) Products Collected by Forest User Groups from Community Forest

No.	Particular	Respondents	Percentage
1.	Households getting non-timber forest products from community forest	50	100
2.	Households getting fodder from community forest	50	100
3.	Households getting fuelwood from community forest	50	100
4.	Household getting others (foods, vegetables, fruits, or medicines) from community forest	37	74

Source: Field Survey (2020)

According to the table (4.7), forest user groups members mainly collect products such as non-timber forest products, fuelwood, and fodder for livestock. They gain most benefits from resin tapping as they chose a commercial tree to plant in their community forest and they made their living by cultivation agricultural crops before they can harvest resin from their commercial trees, Shaw Phyu trees. Fodder for livestock is also available from community forestry by products. All respondents from Yoe Sone community forestry site use fuel for cooking and 100% collected from their community forest. They usually grazed the cattles before community forest management establishment and after establishment of community forest management respondents collected fodder for livestock from community forest. In these ways, respondents could save their expenditure for fuel and fodder after community forestry establishment.

Yoe Sone communities responded that degraded forest condition and soil fertility are improved after establishment of community forest management and soil erosion is also turn to good condition. The following table (4.8) shows the communities' perspective on environment conservation of community forest management,

Table (4.8) Communities’ Perspective on Environment Conservation of Community Forest Management

No.	Environmental Conservation	Respondent	Percentage
1.	Forest Condition After Community Forest		
	Improved	50	100
	No Changed	0	0
	Worse more	0	0
2.	Improvement of soil/water fertility After Community Forest		
	Improved	34	68
	No Changed	0	0
	No Judgment	16	32

Source: Filed Survey (2020)

According to the table (4.8), before start community forest management, forests are degraded in that area. 100 percent of communities responded that forest condition is improved after community forest management implementation and About 68 percent of respondent said soil erosion and water scarcity was significantly reduced. They responded soil fertility and water are improved after community forestry implementation. But 16 percent of participant responded that they confused about the improvement of soil fertility because they are the migrants from different area. They migrated only to participate in Yoe Sone community forestry.

Table (4.9) shows the role of forest user groups in decision making process and their chance to participate in community forestry.

Table (4.9) Role of Decision Making

No.	Practice	Respondent Household	Percentage
1.	Participation on site selection		
	Cannot participate	0	0
	A few	3	6
	A lot	47	94
2.	Participation on formulation of management plan		
	Not participated	0	0
	Participated	50	100
3.	Holding regular meeting of forest user groups		
	Yes	50	100
	No	0	0
4.	Frequency of meeting		
	Monthly	17	34
	Yearly	33	66
5.	Submitting progress report to forest department		
	Yes	45	90
	No	0	0
	Other	5	10
6.	Equity on benefit sharing		
	Yes	50	100
	No	0	0

Source: Filed Survey (2020)

According to table (4.9), all respondents see that forest user groups and Yoe Sone community forest management committee, forest department are the key community for the formulation of community forestry management plan, practice and sustainable development. They together are also the key players of designing the community forestry project. 94 percent of respondents from Yoe Sone community forestry got chance to participate in decision making processes but 6 percent of respondent took community forest acres from others. All respondents participated in the formulating the community forest management plan. Regular meetings were held

twice in a year and the progress report is submitted to forest department regularly. But 10 percent of respondents do not give attention whether the report is submitted or not, they only concentrated in community forest plantation. There is equity in benefit sharing which not different between man and woman.

4.3.2 Community Forest Management Plan

There have two types of management according to the initial trees which already grown in this land.

Table (4.10) Management Plan of Yoe Sone Community Forest

No.	Form of Land Use	Form of Responsibility	Area (Acres)
1.	Agroforestry Farm	Individually	540
2.	Maintaining the Forest	All Members	10
	Total		550

Source: Yoe Sone Community Forest's Management and Plan Book

Individually will grow farm as a form of agroforestry to make income and on the other side they will maintain the forest by cooperation all members together.

Plantation of Community Forest is agroforestry system will initiate in the community forest area with the 15 years plan. According to the 15 years plan, community will grow and maintain 36 acres per year from 2004 to 2018. The process of choosing seedlings to plant in agroforestry plantation will be depend on the water resource, soil situation and management situation. Community request Forest Department's help and technology in the establishment of seedlings garden. Community planned to grow *Sterculia* plantation as the major of income source and *Leucaena glauca* Benth, *Senna siamea*, Teak, *Xylia xylocarpa* (Pyinkatoe), Padauk, Yamanay, Bamboo as a minor to full-fill per household need of timber, housing materials and firewood (fuel). They can reduce the household expenditure by providing fuel and other basic need and they can also provide household income when their surpluses are sale to the market. If they are surplus, households can sale these surpluses to not only in local/village also outside of the local area. On the other hand, they can also serve as an air-cover for agricultural crops (beans, groundnut, sesame...). In the *Sterculia* plantation, Pigeon bean, Green gram, Beans, Groundnut and Sesame can cultivate between two *Sterculia* trees. They can cultivate for three years before *Sterculia*

trees are getting tall to cover the sun. During three years, the agricultural crops can provide household income as a short-term.

As a plantation improvement process, firstly, cutting bushes and weeding in the land for plantation. Second is the cultivation of Sterculia trees by fields of each members with 15 feet distance between one tree and another and teak, Pyinkatoe, Padauk, Yamanay, Leucaena glauca Benth, Senna siamea and Bamboo are cultivated along the plantation border with 9 feet distance between one tree and one tree.

Weeding process is made by agroforestry system that mean making sure when plants are young there no bushes or grasses around the base of the plant and trunk and then digging the soil to plant the ground. But transformation system will use when plants are getting grow and tall.

Fire protection process will be do continuously from starting phase of plantation until 5 years long in every year per month for December, January, February, March, April. Fire protection process is construction of fire prevention road and turn on the fire.

Caring and Plantation is replacing the new one in dead plant, cutting branches, removing un-necessary plants, giving place to the growing plant by removing small plant to avoid stiffness. Determining cuttings are depend on the type of tree plantation and aims of using them. The following table (4.11) shows determining cuttings.

Table (4.11) Determining Cuttings

No	Class	Type of Timber						Note
		Teak	Pyinkatoe	Padauk	Yamanay	Leucaena glauca Benth	Senna siamea	
1.	Myaw	5years	5years	5years	5years	-	-	
2.	Tine	10years	10years	10years	8years	-	-	
3.	Timber	25years	25years	25years	20years			
4.	Fire wood	-	-	-	-	2years	2years	

Source: Yoe Sone Community Forest's Management and Plan Book

The objective of Sterculia cultivation is to only produce Sterculia gum and the lifetime of Sterculia trees are average 30 years. Therefore, above timber species are the main source of households to provide households basic needs, housing materials. By

cultivating *Leucaena glauca* Benth, *Senna siamea*, households can save expenditure of fuel and can avoid cutting the fire wood from natural forests. After 25 years, households can get timber from cultivation of teak. If there have surplus timbers, households can make money from selling of these surpluses.

People can harvest from *Sterculia* when it's 5 years old. At *Sterculia*'s 5 years old, people can produce *Sterculia* gum by respective harvesting system of *Sterculia*. Harvesting system of *Sterculia*: tapped by cutting or peeling back the bark. Production season for *Sterculia* is from lately Jun to February. Teak, Pyinkatoe, Padauk and Yamanay will be used by actual needed amount of each household and if there is need to cut these trees, people will immediately replace with new trees in these places.

The real objective of *Leucaena glauca* Benth, *Senna siamea* are to use as fire-woods. There also has system in producing of fire-woods from *Leucaena glauca* Benth, *Senna siamea* which is avoiding the whole tree cut just allows to cut branches of trees.

4.3.3 Community Forest Management System

Management System is Yoe Sone Community Forestry User Group was formally registered in Forest Department since 2004 for forest conservation, utilization, management and development by the user group. As per discussion with the executive committee member, key persons and review of relevant documents of Yoe Sone Community Forest User Groups during the field survey the following objectives are found included in Yoe Sone Community Forest User Group.

- i. Timber and non-timber products of forest from community forest are intended to consume not only for private but also for commercial selling to others from generation to generation.
- ii. To increase socioeconomic situation and living standard of local community, to create employment opportunities of local peoples, and to get inheritance by initiating community forests.
- iii. To stop deforestation and degradation of forest, to maintain environmental damages, to balance the ecosystem and expecting for forest and environment for their sustainable development and sustainable consumption in future.
- iv. To spread the communal feeling of the forest.
- v. To preserve and promote the degraded forest as a community forest.
- vi. To spread appropriate conservation system to the wildlife available in CF area.
- vii. To perform plantation in the CF's open area.

- viii. To decrease the land-slides and erosions from the forest conservation.
- ix. To provide different forest products such as timber, fire-woods, basic needs of households to the entire community without any hamper to the forest status.
- x. To build development infrastructure by using the income of community forests and so on.

Yoe Sone Community Forest User Groups (YSCFUG) has been managing the forest activities according to the operational plan since the starting time of establishment of it. They are following the same guideline, legal rules and regulations as stated in the approved operational plan for the forest management. According to the local users, the condition of the local forest quality and its situation is becoming glorious after community started to manage the forest and after initiating of the Sterculia community forest.

The overall forest management system in Yoe Sone CF can be described as operational management, protection management, utilization management and promotion and development management which have been briefly described below. The operation management includes the formation of users group, executive committee, other general rules and regulation of community forest, office management and financial status which has been described as following:

Membership and formation are Forest user also called primary user: individual who regularly uses forest for grazing animals and collection of forest's products. All community members are included in forest user group. To become a member of Yoe Sone Community Forest User Group, households need to be long living household over 5 years permanently within the boundary of the Yoe Sone forest area. People permanently living within its boundary are the permanent member of the Yoe Sone Community Forest User Group.

The following are the management committee members' skill and responsibility in Yoe Sone CF.

- i. The member who can bring stability of organization.
- ii. The member who can make unity of organization.
- iii. The member who can actively involve and help in community or organization members' social issues.
- iv. The member who can resolve impartially when occur the conflict between members or between committee and members.
- v. The member who has fresh ideas and plans to develop Yoe Sone CF.

Moreover, there is no gender discrimination between man and woman to become a committee or member. Allocation of CF land acres is depending on households' family size and their capability on community forest land. The formation and structure of executive committee is all the member of Yoe Sone Community Forest User Group has right to become a chairman of Yoe Sone CF by consensus or through the exercise of voting, there has five major positions of executive committee namely, Chairman or president, vice-president, secretary, treasurer and accountant or auditor become the member of executive committee automatically. Executive committee is the decision-making mechanism in one committee. This committee play a significant role in protection and managing the forest with the help of participants' people. People need to follow prescribed rules, regulation and operational plan of community forestry. There has general assembly held when one year in two times or if management committee needs to change the constitution of forest and add new rules. They have been formulated new rules with the agreement of the general users. The new rule changed by general users' agreement but it is necessary to approve from District Forest Office or Forest Department.

The Forest User Committee set the duties and responsibilities for the balance and effective implementation of Community Forestry activities are as follows:

- i. To call the meeting of User Committee twice in a year or if they assume to hold meeting for the discussion on community forest management and forest related other casual conflicts or problems.
- ii. If there any training class to attend, the person who will attend is chosen by the committee and give financial supporting to that person.
- iii. To report to the organization's members, concern about organization's funds and financial documents.
- iv. After 2 years of committee lifetime, committee need to make reselection.
- v. To use and distribute the forest products and benefits equally among users.
- vi. To update new strategies for the future from learning past and current problems.

Yoe Sone Community Forest User Group has also established own office building for the better management of forest related activities. Office building is made with cement, zinc and constructed with District Forest Department and CF's chairman, U Ohn Nyunt. They do not use other staffs from outside to keep account, record and manage official work of community forest. They allocate the role and duty by

themselves means some CF's member act as accountant, auditor to keep account, record and report financial situation to organization.

Yoe Sone Community Forest User Group has transparent financial system and any other related activities to the CF's members. Moreover, they also have organization own bank account for saving the income especially from entrance fee, membership fee, forest products and penalty cost. They used organization's saving income to provide the members and their family's wedding, funeral donation and trainee fees. The revenue from community forest is used in different forest management activities and also used as reinvestment in community development activities such as Middle School development and other educational activities, road construction, natural forest and ecosystem maintaining activities and so on.

Table (4.12) Membership Fee

No	Area (Acres)	Amount (Kyats)
1.	From 0.1 to 5	30000
2.	From 5.1 to 10	60000
3.	From 10.1 to 15	90000
4.	From 15.1 to 20	120000
5.	From 20.1 to 25	150000
6.	From 25.1 to 30	180000

Source: Yoe Sone Community Forest's Management and Plan Book

Table (4.12) shows the membership of Yoe Sone Community Forest User Group. The membership fee is collected at once in a year. The amount of membership depends on the amount of CF area (acres) own per user. If the user has more CF area, this user needs to pay more amount of membership fee than the less land owner of CF area.

As protection management, the activities in this management includes regarding conservation activities and protection of forest and forest products, wildlife and ecosystem maintenance for sustainable development in the future. By protecting from fire, grazing encroachment and illegal cutting and collecting of forest products. They made different and suitable rules for the protection of Community Forestry because protection of forest is one of the major objectives of Community Forestry Team. Every user of Yoe Sone CF has been assigned to present in the duty as volunteer on a rotational

basis. They supervise each other and inform to User Committee for punishment if anyone has been found with stolen forest products or sold illegally forest product. Moreover, grazing is completely prohibited to protect small seedlings, and samplings of Sterculia tree and other tree species.

4.3.3 Socio-Economic Condition of Respondents Household Before and After Establishment of Yoe Sone Community Forestry

Socioeconomic conditions of respondent household include estimated income per year, ownership for productive and non-productive assets, and effect of forest user groups socioeconomic conditions.

A. Health Conditions

The condition of health divided by good, fair and bad in table (4.13).

Table (4.13) Health Condition of Respondents' Households

Health Condition	Before community forest management		After community forest management	
	Number	Percentage	Number	Percentage
Good	21	42%	46	92%
Fair	22	44%	4	8%
Bad	7	14%	-	-
Total	50	100%	50	100%

Source: Field Survey (2020)

According to the table (4.13), there was no same between before and after establishment of community forest management. The respondents mentioned, health service is vital role in human life. Before community forest management, 14 percent of respondents that they had serious case as they were not able for medical treatment cost, poor transportation road and vehicle. After starting community forest management, 92 percent of respondents' households are good health and 8 percent are fair and they can't badly occur serious case.

B. Education Condition

Education also is an important factor of individuals or household's welfare. Education level is positively related to the socioeconomic condition of the individual or household. Person's educational level or status, more or less, promotes the person to participate in some community-based development activities or can raise person role in community forest management or activities. The following table (4.14) shows the education condition of households in Yoe Sone Community Forest Area.

Table (4.14) Education Condition of Respondents' Households

Education Condition	Before Community Forest Management		After Community Forest Management	
	Number	Percentage	Number	Percentage
Good	3	6%	31	62%
Fair	39	78%	19	38%
Bad	8	16%	0	0%
	50	100%	50	100%

Source: Field Survey (2020)

Table (4.14) shows there has no illiterate and the respondents said that education condition was improved for their children after establishment of community forest management in Yoe Sone area. In the past, there was no school in this area so they only depended on local monasteries to literate. Before establishment of community forest management, some families could not afford to extend children education especially middle and high school have more costly. 16 percent of respondents were never learned the government education and they only depended on one local monetary to literate. Some of the children dropped out after completed of primary education level. After community forest management local people got two income sources: selling seeds and gum from cultivation of Shaw Phyu under this management and can save cost for fuel expenditure effect to respondents' households income to save surplus money beside food consumption cost. So, this surplus money was used for consumption of other need including education.

Another benefits of community forest management successful was that building the school by community themselves. In 2001, they opened primary school with the financial and physical effort of local community and order from government.

In 2018, they upgraded primary school to middle school. So, every child can join to school easily than the past. 62 percent of respondent forest user group members' children get access to better education after community forest management implementation and everyone can learn government education within their area easily and comfortable. Among the respondent, 38 percent of them do not get this opportunity because they do have school-aged children. Higher income from selling Shaw Phyu resin to China and India allow local communities to learn higher education or university.

The following table (4.15) show occupation distribution of respondents households.

Table (4.15) Occupation Distribution of Sampled Households

No	Occupation	Households' Number	Percentage
1	Agriculture (Bean, Rice, groundnut, sesame, other)	24	48
2.	Staff (Government, Private)	6	12
3.	Shops	9	18
4.	Casual Workers	11	22
	Total	50	100

Source: Field Survey (2020)

Table (4.15) shows 48 percent households were found to be involved in agriculture, followed by 22 percent were involved in casual workers. 18 percent of households were found to be depend on shops and the rest of 12 percent were involved in government staff. Most of households in this area were found to be involved in agricultural works. The participation in staff was very little than other occupation.

C. Estimated Income Per Year

Annual income of forest user groups households before and after participation in community forestry was shown in table (4.16).

Table (4.16) Estimated Income Per Year by Forest User Groups Households before Participation in Community Forestry

Amount (kyats)	Before Participation in Community Forestry	
	Number	Percentage
100,000-500,000	9	18%
500,001-1,000,000	14	28%
Over 1,000,001	27	54%
Total	50	100%

Source: Filed Survey (2020)

According to the table (4.16), before implemented community forest management, 54 percent of the respondents had total households' incomes over 1,000,001 kyats per year. They only depend on agricultural crops and most are daily-1,000,001 kyats per year form agricultural crops and the most people are wage labors before establishment of community forestry. Income from agricultural crops highly dependent upon weather condition so dry zone communities had been suffering from the loss of agricultural crops due to the extremely high temperature and very low rainfall within a decade.

But after implementation of community forest and management, gave many income source opportunities by forest user groups members can raise seasonal crops and there are also another income sources such as fuelwood, fodder, Shaw Phyu resin and its seeds. According to creating many income opportunities, Yoe Sone community forestry become income source of local community forest user groups. With these benefits, many people want to participate in community forest management more and more. Shaw Phyu resin has highly demanded in local and foreign market and the trees are highly adaptable to extreme weather situations. It is also the most appropriate option for the people to plant mixed with agricultural crops so that they can make income during initial period of plantation. Income from resin tapping and selling seeds is significantly high and expenditure are low in plantation, People who invested their time in community forestry can possess the better income now.

Table (4.17) shows the estimated income, expenditure of Sterculia trees plantation and their profit from plantation.

Table (4.17) Estimated Income, Expense and Profit Per Year of Shaw Phyu Trees Plantation

Acres Owned	Number	Outcome Per Year Sterculia (Viss)	Income Per Year (Kyat)	Expense Per Year (Kyat)	Profit Per Year
1	2	144	2592000	700000	1892000
2	4	192	3456000	720000	2736000
2.5	2	210	3780000	720000	3060000
3	4	240	4320000	720000	3600000
4	2	168	3024000	550000	2474000
5	23	720	12960000	850000	12110000
8	2	720	12960000	850000	12110000
10	9	2400	43200000	1000000	42200000
15	1	24000	432000000	2500000	429500000
20	1	240000	4320000000	2500000	4317500000

Source: Field Survey (2020)

Table (4.17) shows income, expenditure and profit of Sterculia cultivation and its situation. Sterculia trees are well grow in Yoe Sone area than other area in Wun Dwin Township due to the soil condition and environment condition of Yoe Sone area is the best place to grow Sterculia Community Forest than the other area and region. In Yoe Sone CF area, different participants own different Sterculia acres but 5 acres owner are the most number among participants. There has only one number in 15 acres and 20 acres respectively and they are the most profitable participated household among participants because they are the very first households who initiated Sterculia Community Forest in Yoe Sone Community Forest Area and they are very actively participated in Yoe Sone Community Forestry. In table also shows owner of 2 acres is more profitable than 1 acres' owner which means if you own more acres, you will get more and more profit. Calculation of income based on market price in 2019 ,18000 kyat (selling price) per viss. Profit for year; total income minus total expense in same year. In table (4.16) 4 acres' outcome (168 viss) is lower than 3 acres (240 viss) because

some participants not interested to cultivate Sterculia trees but they started Sterculia cultivation when owners of 3 Sterculia land acres got large amount of income.

Therefore, cultivation time/duration is the only one reason of profit difference between 4 acres of Sterculia land and 3 acres of Sterculia land. Another case is that there has no different outcome between 5 acres and 8 acres because 8 acres' owners are not caring at Sterculia trees and cultivation. They intend to reduce expense of Sterculia cultivation so hired a smaller number of workers to maintain Sterculia trees and land which affect to Sterculia outcome (viss). Therefore, early cultivation of Sterculia trees and caring Sterculia trees can give more outcome and more profit.

Formation of community forest management create permanent employment opportunity for local community and many income sources. The following table (4.17) shows the other income source of respondents. Income of Households reflect the flow of household's resources which enables to meet their basic needs, improve living standard, and surplus income go to saving. The household in the Yoe Sone CF area had not limited only one source of income. Rather than one, they were found to be involved in multiple income sources because Yoe Sone CF is a form of agroforestry: agriculture incorporation the cultivation of Sterculia trees. However, main income of the respondents' households in Yoe Sone CF Area is the Sterculia cultivation in their CF land acres. The following table (4.17) shows households' involvement in different income sources and their corresponding:

D. Estimated Expenditure Per Month

Monthly expenditure of households before and after participation of community forestry can see in table (4.18).

Table (4.18) Monthly Estimated Expenditure of Respondents' Households Before and After Participation of Community Forestry

Amount (Kyats)	Before Participation		After Participation	
	Number	Percentage	Number	Percentage
Under 100000	42	84%	5	10%
100000-200000	8	16%	43	86%
200000-300000	0	0%	1	2%
300000-400000	0	0%	1	2%
400000-500000	0	0%	0	0%
Above 500000	0	0%	0	0%
Total	50	100%	50	100

Source: Field Survey (2020)

According to the table (4.18), it is showed that monthly expenditure of households before and after participation in community forestry and most of the expenditure of respondents' households increased after participation. In the past, most percent of respondents (84%) spent under 100,000 kyats as the household expenditures and 16% of households in 100% had total expenditure between 100,000-200,000 kyats per month. Because local people are daily-wage labours and less opportunity for income sources. After participation in community forest management, percentage of households increased from 16% to 86% had total expenditure between 100,000-200,000 kyats per month. 2 percent of respondent spend above 300,000 kyats per month as household expenditure and no one had this amount of expenditure per month in the past.

Their commercial plantation of Shaw Phyu trees in community forest gives higher two income sources: selling resin and seeds. Other products from community forest such as fuelwood, fodder for livestock can save their expenditure or cost in spending for fuel, fodder and other households' basic needs. Community forest plantation is an agroforestry form so they sufficient food and basic needs for cooking from their community forest.

Table (4.19) Education Expenditure Per Month by Respondents' Households Before and After Participation in Community Forestry

Amount (Kyats)	Before Participation		After Participation	
	Number	Percentage	Number	Percentage
0-30000	47	94%	31	62%
30001-60000	3	6%	9	18%
60001-90000	0	0%	0	0%
90001-120000	0	0%	4	8%
120001-150000	0	0%	2	4%
Above 150000	0	0%	4	8%
Total	50	100%	50	100%

Source: Field Survey (2020)

Above table (4.19) shows sampled households' education expenditure in Yoe Sone Community Forest Area. According to this table, most of the respondent's education expenditure increased when they became part of the community forestry than before participation in community forestry. Before participation, no one not used education expenditure above 150,000 kyats per month but after participation 8% of respondents had above 150,000 kyats expenditure per month for their children education.

After community forest implementation, forest user group members get higher income from Shaw Phyu resin and some expenditure using for fodder, fuelwood and other basic needs for cooking are saved so they can more spend in education investment. This education investment leads the better human resources before formation of community forest management.

E. Ownership of Assets for both Productive and Non-productive.

The following table (4.20) shows ownership of assets including both productive and non-productive which owned by the respondents before and after participation in community forestry.

Table (4.20) Respondents' Assets for Productive and Non-productive

Assets	Before Participation	After Participation
	Number	Number
Productive Assets		
Cattle	50	128
Machinery and Equipment	3	31
Livestock	60	170
Non-productive Assets		
Gold	-	38
TV	3	41
Radio	24	48
Others (Skynet, EVD)	-	8
Bicycle	6	21
Motorcycle	2	32
Car	-	4
Truck	-	2
Solar and Battery	11	50
Phone	5	50
Total Respondents = 50 Households		

Source: Field Survey (2020)

According to the table (4.20), respondents' own cattle number were increased more after participation because they were landless in the past. All productive assets increased after participation in community forestry. Also, respondents could invest more in non-productive assets because of getting higher demanded of Shaw Phyu resin. They create more income by participation in community forestry so more income led to surplus and surplus income also lead to saving or investment in assets. Respondents buy gold to save their surplus income. All respondents' households owned solar and battery for light and electric energy after participation in community forestry. Communication system was better than the past because all respondents could hold phone.

Therefore, the formation of community forest management has impact on local communities' social, economic and environment because of forest user group members can get forest products from their community forest such as fuelwood, timber, fodder and

non-timber forest products for their basic needs and resin tapping for their living. They can fulfill until the meet of their needs for long-terms. They gain benefits such as water supply, better road access to towns, village school buildings were occurred as one of the outputs from the community forestry project. There were trainings which concerning about community forest management and agroforestry technique and knowledge training for Yoe Sone community forestry establishment. Their children and younger generation can access better government education as the improvement of human capital in local communities and they don't need to work as daily-wage labours since they participated in community forest management and activities. They become land owner and can manage their own land. They created job opportunities for themselves and other local peoples in community forest as working labours for digging holes, cleaning land, planting trees, watering to trees and maintain the community forest. Income from Shaw Phyu plantation is significantly high so forest user group members got financial improvement lead better housing, could buy or investment in both productive and non-productive assets, possessed more livestock and got permanent employment for agroforestry. People participation in managing community forest activities is very active and high. They held regular meeting and sharing knowledge and experiences within their community even though they individually manage their own agroforestry plot and they together attempt for local communities' development. They used their income for village and community's development and they also make reinvestment in community forest land for sustainable development by giving update training.

CHAPTER V

CONCLUSION

5.1 Findings

This study found that community forestry instructions was issued by forest department since 1995 in order to protect forests and forest resources and support the basic needs of local people in Myanmar. This also give the real rights to community to have equitable use of forest. Through community forest management, win-win conditions of local communities' socioeconomic development and forest conservation can be achieved. In 2019, forest department replaced new community forestry instructions to replace the former 1995 instruction. In the new instruction, the specific objectives and definition for community forestry were clearly defined and focuses a significant development in the aspects of partnership, participation, and decentralization. The community forest land lease period is 30 years.

Most of community forestry implementation can see in Shan, Mandalay, Magway and Ayeyarwady divisions. The reason of most community forestry implementation is located in these areas where severe deforestation and fuel shortage have been a prevalent and persistent problem. Nowadays, Myanmar's community forestry had become a well-established and integral part of the framework for management and use of forest resources sustainability. In 2019, areas of community forestry increase to 614,579 acres (248,711 ha) that are certified by the forest department, participating 4,707 forest user groups covering 119,355 households. This growth has been the result of its legal and institutional foundations strength. In these foundations the emphasis on livelihood and community forestry enterprises development (for example, revision of the community forestry instruction in 2016, community forestry strategy 2018-2020, and the forest law 2018), recognition of community forestry in building resilience of rural communities to climate change, (Myanmar climate change strategy and action plan 2016-2030), and integration in multi-sectoral land use management and governance initiatives (such as land use policy,

2016, Myanmar reforestation and rehabilitation program, 2017-2027) are include as institutional foundations in community forestry growth.

Yoe Sone community forestry was formally registered in forest department since 2004 for forest conservation., utilization, management and development by the forest user group. It was implemented as agroforestry community forestry type. The main tree specie planted in Yoe Sone community forest plot, Shaw Phyu (*Sterculia versicolor*), is planted mixed with agricultural crops such as green gram, sesame, groundnut, cotton, etc. Yoe Sone community forest user group has been managing the forest activities according to the operational plan since the starting time of establishment of it. The overall forest management system in Yoe Sone community forestry can be described as operational management, protection management, utilization management and promotion and development management. They are actively participation in community forestry and they allocate their responsibilities and role by themselves for the better management of forest related activities. They hold monthly and annual meeting regularly. With forest user group members' effective protection and actively participation, Yoe Sone community forest management became popular and successful management framework and community forestry gained vegetation cover with commercial benefits and lead to better condition of socioeconomic of the users. Forest situation and environment were also gained benefits from effective management of community forestry.

This study also examine the impact of Yoe Sone community forest management on socioeconomic status of forest user group households. The respondents expressed that the situation of forest was degraded and extreme weather before establishment of community forestry. They also expressed that most of the people were landless and daily-wage workers. Respondents received low return from farm, income was unstable and low, lack of supporting education and transportation service that create their livelihood insecurity before starting the Yoe Sone community forestry program. Thus, Yoe Sone community forestry implementation has made lives especially rural lives more comfort in terms of providing forest resources for their daily livelihood and basic necessities (e.g., fuel, wood, timber, fodder etc.) and is a promising sector for social, environmental, and economic development.

After establishment of Yoe Sone community forestry, everyone who participation in this project own land and some migrated to participate in Yoe Sone community forestry. Most household can hold their own community forest land and can manage their

community forest land. They are not landless person and daily-wage labours anymore, they became landowner and they can also transfer their land to generation. As job opportunities, they hire some labours in their community forest land for site preparing, seedlings, digging hole, watering, resin tapping and cleaning resin etc. Implementation of community forest management can create regular employment.

Community forest management initiation approach also impact on livelihood condition change is found. The livelihood condition of forest user group members of Yoe Sone community forestry were largely changed when comparing before and after implementation of community forestry program. After managing the community forest land, people can collect many products such as non-timber forest products, fuelwood, fodder. Among their community forest products, they gain most benefits from Shaw Phyu resin tapping because it has higher demand and large market in China, India and also in local. As consequences, forest user group members' households of Yoe Sone community forestry gained higher income from Shaw Phyu plantation. Shaw Phyu plantation made two income sources: selling Shaw Phyu resin tapping and selling Shaw Phyu seeds. They got a few incomes from selling of surplus fuelwood to other. Accordingly, their children got access to better education which is they never got before the establishment of community forestry. Therefore, resin tapping became alternative livelihood options and significant practice in some extent. So, the benefits gained are cumulative and mutually reinforcing. About health condition, 14% of respondents that they had serious case but after establishment of community forestry 92% of respondents were not face poor health condition because they can effort to take medical treatment cost, good and easy transportation road and vehicles to go hospital.

Respondents can also make investment from their surplus income to buy productive and non-productive assets after participation in community forest management. As an environment and forest situation, 100% of respondents agreed that forest, soil and water condition are improved by implementing community forest management. Moreover, local community also agreed that they got positive benefits of the ecosystem services such as plenty and pure water in every season, fresh air and wind shutter, a sufficient amount of the tangible benefits such as fuelwood and fodder from community forest can be collected from actively participation in community forest management.

The implementation process of Yoe Sone CF was self-initiative and community participation level is very high and they have full attention and interest in community

forest management and implementation. The reason is that local people have taken the role community forest management is extremely important in sustainable development of Yoe Sone community forest and local development. According to this management, the revenue of the community forest is used in different community development activities such as road construction, school building construction, small wooden bridges for better education service and transportation system and also construct the water tanks for both drinking and using. These are the reason why Yoe Sone community forest management was popular and success among community forestry in Myanmar. There has no government intervention into their management and decision making: members of forest user group have fully rights and power to manage community forest and forest products. This study shows Yoe Sone community forest management is a successful management with meeting the basic needs of local community, better socioeconomic condition, sustainable development of forest and forest resources. Environmental benefits are also gained from this forest management.

5.2 Suggestion

According to the above findings, members of Yoe Sone community forest user group had improvement in economic, social, living standard and ecosystem. Their economic situation is totally changed from the success of Sterculia Community Forest. They get higher income from the changing of traditional agriculture to community forest initiating and growing Sterculia trees in CF lands. But some people are still growing agricultural crops and still faced losing and less profitable cause of water insufficient and lack of electricity from government.

Water wells are sufficient for Sterculia trees because plantation of Sterculia trees do not need to watering daily, they only need watering twice per month but farming of agricultural crops need a lot of water at growing stage. But this area is dry zone therefore it has no sufficient water sources and low level of rainfall to grow agricultural crops. And also, there has no electricity so local peoples are only depend on their private solar, battery and private generator. By using generator and pump to allocate water into the agricultural farms make more costs for farmers and some are not effort to use generator and pump. There has more costs in farming leads to low profit from farming. Government should provide water sources by building dam or other technology and assistance and provide electricity to reduce agricultural costs and for better living standards of local people.

In Sterculia producing and selling, local people want to sell Sterculia gum as a finished good or commodities to make more money because they know Sterculia gum can make as commodities or something more valuable than raw material (Sterculia gum). But they have no knowledge, techniques and technology and assistance such as finding markets or capital assistance. Therefore, government should provide techniques and technology, financial assistance to produce finished goods and make training program by sending professional to this area. In selling of raw materials and seeds (Sterculia gum and seeds), local people cannot conduct to direct market they only rely on brokers so they sell at price of broker told and defined price. Local people believe that if they can sell directly to foreign market, they will be more profitable than relying on the broker. Yoe Sone Community Forest area would benefit greatly from the creation of a development plan that is coordinated with the development plans of the district department, regional and Union government.

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APPENDIX 1

“STUDY OF THE SOCIOECONOMIC IMPACT OF COMMUNITY FOREST MANAGEMENT IN YOE SONE COMMUNITY FOREST, WUN DWIN TOWNSHIP”

Survey Questionnaire Socio-Economic characteristics of Yoe Sone Community

Forest Users' Households

No.	Data Collecting Date							
	Village Group and Township							
	Respondent Name							
1.	Detail of Family	Name	Age		Education	Job	Race/Religions	
2.	Native Town	Yoe Sone Area			Other		Changing of reason	
3.	Stay Duration in Yoe Sone Area	5 year	10 year		15 year	20 year	25 year Above 25yr	
4.	Living Standard (Housing and Name of things)	Type of House					Other Ownerships	
		Wood and Brick	Wood and Brick	Cement	Tent/Zinc	Other		
5.	Water Situation							
6.	Electricity							
7.	Monthly Income							

	from Communit y Forest						
8.	Monthly Expense	Food	Fuel	Electric	Healt h	Educatio n	Luxury
9.	Former Job or Occupatio n	Agricultural farmer	Staff	Shops	Casual Worker		
10.	Age of User						
11.	Road Situation						
12.	Main Income Source						
13.	Education	Good		Fair		Bad	
	Health	Good		Fair		Bad	
	Investmen t	Good		Fair		Bad	
	Saving	Good		Fair		Bad	
14.	Sterculia Tree Cultivatio n Situation and their outcome (Viss)						
15.	Income and Cost of Sterculia						

	Community Forest Management per year				
16.	Household ownership of fixed assets				
17.	Impact of CF in economic situation	Very Large	Large	Fair	Less
18.	Impact of CF in social situation and living standard and other.	Very Large	Large	Fair	Less
18.	CF Management have positive on women.				
19.	Number of CF acres own.				
20.	Yoe Sone CF Management has				

	large impact on community				
21.	Yoe Sone CF Management has good impact on environment and ecosystem				
22.	Role of members in Yoe Sone CF Management	Major	Fair	No	Other
23.	It there has any fees for members				
24.	Forest Department intervention in Yoe Sone CF Management.				
25.	The quality of	Good	Less Degraded	Degraded	Very Degraded

	local forest before CF				
26.	How does community monitor the Yoe Sone CF area and management?				
27.	Types of work provided by Yoe Sone CF Management.				
28.	Needs and Difficulties of Yoe Sone CF users				
29.	Any Suggestions				

Thank you for your kind cooperation!