Implementation of Forest Certification in Small Farm Community Forest in Gunung Kidul Regency, Indonesia

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MASTER THESIS DRAFT

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ABSTRACT

The community forest is potential alternative in the development of sustainable forestry, particularly in forest and land rehabilitation and as income boost for communities life near forest. Obstacles faced in the development of comunity forests is related to the issue of global warming and eco-labeling, which requires certified wood as a condition to enter international timber market. Community forest management unit in Gunung Kidul, which is managed by the local community has been proven that people have been able to manage forests sustainably by using FSC or TLVS forest certification. This study aims to: (1) analyze the implementation of FSC and TLVS forest certification both in sustainable community forest management; (2) to analyze the factors that led farmers interested in following the FSC and TLVS certification; (3) Find social, economic and environmental impact of both certification FSC and TLVS. Research shows that implementation of forest certification, factors that influence the participation of farmers and forest management unit to follow TLVS and FSC certification was based on the factor of awareness of protecting the environment, in hopes of getting a premium price, and the assistance of external institution. Although farmers in the management units have an awareness of protecting the environment but they are not willing to do a certification at their own expense . In term of economic aspect , the cost of preparation, assessment, and surveillance to be paid if the certifying potentially reduce the profitability of the concession of the people while there is no premium price. Certification costs Rp 40 million every three years for TLVS and 13,000 US $ for FSC certification once every 5 years in those years in which the farmers do not get results instanty because timber harvesting is done at the end of the cycle, namely in the year to 8 to the 20th year. On the other hand, the certification provides economic benefits that more and more help for example in the form of financial assistance and crop seeds since the visits of government and non-governmental agencies. Look from the aspect of social impact, although there has been no institutional strengthening but the certification successfully established institutional potential to be developed further, deliver increased processing capacity of forest products, development of partnerships between farmers and other institutions, and improving farmer knowledge about community forest. The environmental benefits gained from the development of mitigation of the environmental effects of the use of forests and an increase in the measurement of the conservation of biodiversity, ecological functions, such as water cycle in Gunung Kidul.

Keywords : FSC,TLVS, Gunung Kidul,Forest Certification

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LIST OF ACRONYMS

AAC	Annual Allowable Cut
BPS	Biro Pusat Statistik (Indonesia Statistics Bureuau)
FSC	Forest Stewardship Council
HPH	Hak Penguasaan Hutan (Forest Concession Act)
KTH/KTHR	Kelompok Tani Hutan (Farmers group)
KWML	Koperasi Wana Manunggal Lestari (Wana Manunggal Lestari farmer association)
LEI	Lembaga Ecolabel Indonesia (Indonesia Ecolabel Agency)
Menhut	Menteri Kehutanan (Minister of Forestry)
NPK	Nitrogen (N) Phosporus (P) Potassium (K) (Fertilizer)
NGO	Non-Governmental Organization
Permenhut	Peraturan Menteri Kehutanan (Decree of Ministry of Forestry)
RAT	Rapat Anggota Tahunan (Farmers Group Association Annual Meeting)
Rp	Indonesian Rupiah (Indonesian Currency)
SPPL	Surat Pernyataan Pemantauan Lingkungan (Environmental Monitoring Document)
SHM	Sertifikat Hak Milik (Private Land Ownership Certificate)
SKAU	Surat Keterangan Asal Usul Kayu (Certificate of Wood Origin)
SVLK	Sistem Verifikasi legalitas Kayu (Indonesian term for TLVS)
SFM	Sustainable Forest Management
TFT	Tropical Forest Trust (an NGO involved in sustainable forestry)
TSP	Triple Super Phosphate (Fertilizer)
TLVS	Timber Legality Verification System

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CHAPTER 1.INTRODUCTION

1.1 Background

The destruction of forests(deforestation and degradation) are becoming increasingly common and occur in all countries that have forest resources (Awang, 2009).Indonesia is one country where natural forests have been exploited since the colonial era until this millennium. State of Indonesia's tropical forests alarming condition and undergo a process of deforestation of 2.83 million ha per year in the period 1997 to 2000(Awang, 2009).According to data from the Ministry of Forestry (2009), Indonesia's forest comprises area of 138 million ha, with a national rate of deforestation from 1998-2008 has reached an average of 1.7 million hectares per year. Cause of deforestation is a part from the continuing work of the exploitation concession as the New Order regime(Soeharto presidential time), also coupled with rampant logging(illegal logging) since 1999, land clearing for smallholder plantations and private plantations, forest fires, and power struggles over forest land between timber companies and indigenous peoples(Awang 2009).

Illegal logging has a negative environmental impact, causing the loss of forest products used by rural communities, creates conflict and leads to loss of tax revenues that could be used for development activities. In Indonesia the potential loss of tax due to illegal logging in 1998 estimated to reach 1.5 billion US Dollar(Palmer, 2001)Therefore, many emerging government initiatives to eradicate the practice of illegal logging and timber trade. One iniatives carried out by the government is to intensify certification of forests and forest products(eco-labeling) At the national level, the government has enacted Presidential Decree (Suardana, 2011). At the international level, several agreements related to combating illegal logging has been signed with the UK in April 2002, with China in December 2002, with Japan in June 2003, and with the United States in November 2006.(Setianingsih, 2009). Furthermore, Indonesia has made similar efforts in Europe under the Action Plan of Forest Law Enforcement, Governance, and Trade-Voluntary Partnership Agreement (VPA) since May 2003.(Setianingsih, 2009).

There are several reasons for forest certification. First, consideration of a case in which all of Indonesian timber importing countries require proof of the legality of timber. Second, the need for a reduction in wood processing capacity in Indonesia to balance production levels in line with sustainable harvest levels is the best solution and not a partial solution(Tacconi et al, 2003). This implies that to solve the problem of illegal logging in Indonesia is to increase the supply of logs that are legal and sustain.One alternative suppliers of legal logs which along with the reduced supply of logs from natural forests is the raw material wood that produced from private community forests that are certified(Wahyudi, 2011). If the community forestry continues to be developed, the pressure on natural forests in the form of exploitation to meet the needs of industry both legal and illegal will be reduced and at the same time this will give a significant role to the society especially forest farmers to participate and guarantee the continuity of the national industry.

According to Suharjito (2010) based on its merits, community forests are divided into forest with tangible and intangible benefit. Tangible benefit is a benefit in the form of material. While the benefits are intangible benefits that shaped material. In community forests, tangible benefits that can be perceived by the people, especially forest farmers is a benefit in the form of wood, rattan, roots, leaves and so on.Where they can collect forest product directly from their own community forest land. Intangible benefits may include environmental services, landscape, education, biodiversity of flora and fauna and others.Community forests in Indonesia have great potential, both in terms of tree population and number of households which are working on, which obviously is able to provide the raw material of the forestry industry. According to data from the BPS (Central

Bureau of Statistics) (2011), the potential for community forests in Indonesia reached 65,732,298 m3 with an area of 1,560,229 ha. The number of trees there reach 226,080,019 and the number of trees ready for cutting as many as 78,806,038.Forest certification emerged as a form of environmental awareness of the global community that requires the creation of sustainable forest management. Certification in community forests is one way to gain public recognition for sustainable forest management and is expected to be a way for intensive-intensive markets and government policy support for the development of community forests.

One of the certification schemes developed in Indonesia is the Forest Stewardship Council (FSC). FSC certification scheme aims to develop an international standard for sustainable forest management (Wahyudi, 2011).In 2009, Indonesia through the Ministry of Forestry and the Ministry of Commerce has imposed Timber Legality Verification System (TLVS) for Indonesian export timber. TLVS timber tracking system is arranged in multistakeholder forestry to ensure the legality of the timber being circulated and traded in Indonesia.(Rika et al, 2011).There are few studies that examines the implementation of forest certification in community forests. Previous research about certification conducted by Hinrichs et al (2008) resulted in the formulation of the management of community forests certified FSC and LEI (Indonesian Ecolabel Agency). Another study conducted by Susilawati (2013) investigates the institutional management of community forests with TLVS certification scheme. Daniyati (2009) asseses the social and economic impacts of certified and non certified community forests.Wahyudi(2011) examines the role of aspects of community forest management in certified and non certified forest. In contrast to previous studies, this study seeks to conduct both explanatory and evaluative analysis and also perform a comparison of the management of community foreststs hat have been certified by two different certification schemes namely the FSC and the TLVS.

1.2. Problem Statement

Indonesia is a country in the world that have the large natural tropical forest resources with high biodiversity. Pressure on the preservation of tropical forests in the world is increasing due to the demand for forest products while extensive forest cover decreases. This situation encourages the emergence of forest resource management paradigm to be sustainable and in line with the target of achieving the Millenium Development Goal's to ensure environmental sustainability .Sustainable forest management implementation is not only required in the area of natural tropical forests, but also widespread community-managed forest.

The role of community forests is increasingly important as a source of timber supply amid begin of implementation of the moratorium on natural forest. However community forest development still found some problems. First, the weak organization of farmers in the management unit; The second, lower prices and weaker bargaining position in the pricing of timber; Third, the lack of understanding on aspects of silviculture; fourth, under development of developing productive efforts of non-timber products and products processed from wood.

Certification is part of a market system that is an incentive, encouraging change. In this case the impulse for change was assumed to be obtained from the market a more definite and of premium (more value) obtained labeled products. Some values are to be developed with community forest certification are:

1) Encouraging sustainable forest management. Forests or products to be certified are forests whose management meets the requirements of sustainability or at least do not disturb the environment. Ecolabel certification is expected to stimulate and improve the performance and sustainability of community forest management.
2) Giving awards and strengthen initiatives of community forest management. This condition is caused by the less supply of natural timber so many industries are looking for wood from

community forests, of course with a relatively good price, Certificate of forest management is expected to lead to better management.

Certification schemes aim to support the achievement of sustainable forest management (Rohman, 2010). However it still needs to be studied whether having certification has an impact on the management of community forests.This study was conducted to assess the extent of FSC forest and TLVS certification scheme affect the management of community forests and at the same time also want to see the social, economic and environmental impactfrom both certification scheme which is part of the standard certification scheme itself.

1.3 Research Objectives

The general objective of this study aims to explain the role of different forest certification schemes in community forest management in Indonesia. The specific objectives are as follows:

- Understand the implementation of community forest management by community forest management unit certified by the FSC and community forests certified by the TLVS.
- Assess the impacts of forest certification within FSC and TLVS certification schemes in term of economic, social and environmental dimensions.
- Develop recommendations for promoting community forest management certification in the future.

1.4 Structure of the Research Proposal

This research proposal is organized in different chapters which report the main elements of a research project.

The first chapter describes background of the research, the problem statement and the knowledge and insight that will be provided by this research to contribute toward solving the problem.

The second chapter presents an elaborated theoretical framework and preliminary research that provide the basis for the execution of this research.

The third chapter elaborates on the design of this research including the research framework, research questions, research strategy, method of collecting data, data analysis and research planning

Chapter four shows the results of explanatory and evaluative analysis of implementation of forest certification in small farm forest in Gunung Kidul which examines to kind of forest certification which is TLVS and FSC .

Finally, the last chapter gives a concluding remarks of this research along with some recommendations for the future research.

CHAPTER 2LITERATURE REVIEW

This chapter aims to elaborate on the theories and concepts associated to this research. The first section of this chapter presents forests and community forest management and its most representative issues according to studies conducted by different scholars. The second section describes some of the studies which connect to forest certification schemes.The last section of this chapter explains about FSC and TLVS.

2.1. Forests

Forests are natural resources potential.The forest as a capital development that has real benefits to the lives and livelihood of the Indonesian nation, whether ecological, economic, social and culture in a balanced and dynamic way, therefore, should be preserved. Forest resources as mandated by Act 41 of 1999 is as provision of industrial raw materials and sources of revenue so that it must be used with due regard to the nature, characteristics and vulnerability. Forests should be protected and utilized for the welfare of the Indonesian people, both the current generation and future (Act 41 of 1999). The forest is an ecosystem unit in the form of land that contains natural resources dominated by trees in their natural environment, which is one that can not be separated. Furthermore, to assert the position of the forest as an area that is controlled by the state. This definition gives emphasis to the ecological function of the forest as a whole biophysical forest ecosystems and form the form land containing natural resources that trees dominated in one united environment. In this definition, although it is part of the law, but did not contain a statement that explaining legal status of forest or land. This definition is entirely based on the ecological perspective.

Suhendang (2002), states that the forest can be seen from the factors: a form of biophysical and plants, ecological functions, the interests of the management of operational activities or other specific activities, and legal status forest land. Forest definitions based on an emphasis on the concept of ecology, the forest is the dominant plant species (trees or other woody plants), the nature of tree growth (together and tight enough) and serves as plant communities. The size of the minimum tree density of the forest's ecological function is its ability to create a microclimate in the forest that are different from the circumstances around the outside. Helms (1998), states that the forest is an ecosystem characterized by the trees were dense enough and extensive, often consisting of standing trees of diverse nature, such as: composition, types, structure, age classes, and processes related ; generally include: prairie, river, fish, and wildlife. Forests also includes a special shape, such as the forest industry, non-industrial private forests, plantations, community forests, protected forests and urban forests. The above definition emphasizes the function of forests as an ecosystem with specific characteristics , the closure of the density and consists of several stands that have characteristics which vary in terms of composition, structure and age classes. As is the tree stand is a piece of land that is homogeneous and geographically concentrated that have combination of physical properties of the soil, plants, and minimal facilities are set in forest management.

The Ministry of Forestry (2009), gives a definition of forest as an ecosystem characterized by a fairly broad coverage of trees, both dense and less dense. From the above definitions emphasize the function of forests as an ecosystem characterized by a fairly extensive tree cover density of dense trees or less dense. Forest is a natural resource that can provide multiply benefits, both benefit directly as a source of various types of goods, such as wood, sap, bark, leaves, roots, fruits, flowers, and others that can be used directly by humans or be raw material for various industries which may be used to meet almost all of human life as well as indirect benefits in the form of environmental protection, the management of the water system, provide beauty and comfort and others (Alikodra, 2008).

Another way of define the benefits of forests in recent years is associated with forest which used in the concept of sustainable forest management "principle Forest" which was adopted at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992 to conclude about SFM (Sustainable Forest Management), namely forest management in accordance with the principles of sustainable development. Sustainable forest management give benefit at social, economic and environmental functions of production (economic), the function of ecological, cultural and social functions. Forest benefits in the production function groups or also called the overall functioning of the economy is the forest products that can be used to meet the needs of human life in performing various measures of economic activity. Included in this group e.g forest products for industrial raw materials that have commercial value, namely timber for industrial raw materials, timber forest products for industrial raw materials, firewood to be sold commercially, and forest services to generate fresh water to be sold commercially.

Benefits of the forest in groups of ecological function is to improve the quality of the environment, for example, forest function to control erosion, maintain soil fertility, habitat for flora and fauna, and forest function for controlling the diseases of agricultural crops. Benefits of the forest in groups of socio-cultural functions are goods and services that can be produced by forests that can meet the public interest, especially for forest communities for various purposes in the fulfillment of their needs. Included in this group is the provision of employment, providing land for cultivation, firewood providers as well as various functions need in order to carry out educational activities, research as well as for cultural and religious activities (Awang, 2009) Current forest benefits tend to decrease the damaging condition continues to occur. Excessive forest exploitation, illegal logging, land clearing, forest fires, and competition for land between land lords and local communities that encourage deforestation (Awang 2009).

Indonesia has a total forest area of 136.73 million hectares, consisting of a total forest area of 133.30 million hectares and 81.81 million hectares of the total area is designated as production forest area with degraded land reached 3.41 million hectares (Statistics Directorate General of Forestry Production Development, 2012), with log production amounted to 34.32 million m3, plywood 3 million m3, 710 208 m3 of sawn timber and other wood 6.38 million m3. However, the current level reached 1.17 million hectares of forest destruction in the range 2005-2010. This figure decreased compared to the years 2002-2005 was 3.8 million hectares. (Statistics Directorate General of Forestry Production Development, 2012)

2.2 Forest Management

Forest management aimed to give greater prosperity for the people that is equitable and sustainable (Act No. 41 of 1999). Efforts are made to ensure the existence of the forest with an area of considerable and proportional distribution , optimize the various functions of forests (conservation, protection, and production function), increase the carrying capacity of water sheds, increase the ability to develop capacities and empowerment of communities in a participatory manner, equitable, and environmentally friendly, and to ensure equitable distribution of benefits is sustainable. Forest management in Indonesia, in principle, carried out by the government, private sector and community (Awang 2009).Forest management by government is also involve the community, with one of the activities is the empowerment of communities in and around the forest or in the context of social forestry. Community empowerment can be done through village forest, community forest, and or partnerships. Communities can have permission to use forest resources after receiving the facilitation of the forest area that has been designated as a work area of community forest by the Decree of the Minister (Minister of Forestry Regulation P.37 number / Menhut-II / 2007). Social forestry purpose is to realize the sustainability of forest resources and

improve the welfare of the community through the empowerment of local communities in or near forests (Minister of Forestry Regulation P.01 number / Menhut-II / 2004).

According to Suharjito (2010) system of forest management in the social forestry covers all management activities comprehensively which covers plant and it maintenance and utilization. For the implementation of the comprehensive management needs institutional strengthening partnerships between community, business and government. In addition to the institutional partnership, strengthening management systems and community-based business system largely determines the success of social forestry. Empowerment of communities in forest management in practice have several obstacles, one of which is that government policies have not been fully bottom-up. Kartodiharjo (2008) said that the weakness of forest management program during this time is because it lack of decision-making process that bottom up. The government only see that the welfare of society can be achieved only by increasing revenue. Community forest management was considered not pay attention to the principles of preservation of forests, this is because they tend to pursue economic benefits in the form of corporate profits and increased revenue but forgotten forest communities. Arief (2001) says that holders of forest concessions (HPH) rarely understand the principles of preservation of forests because of the pursuit of profit in a short time. Other forms of forest management began ogled by the government is the management of community forests.

2.3 Community Forest Management

Based on Permenhut P. 3 / Menhut-II / 2011(Ministry of Forestry Decree), the community forest is a forest that grows on land encumbered property rights or other rights outside the forest area with the provision of a minimum area of 0.25 ha, cover closure of woody plants and other crops more than 50%. According to Hinrichs et al (2008), in a broad sense, community forests covering the guarantee of access to and control of forest resources for livelihoods in and around forest areas where they depend on the community forests economically, socially, culturally, and spiritually. According Darusman and Hardjanto (2006), community forests managed by rural communities that contribute to the benefits of community forests have an impact on the economy of the village. Community forests contribute to the farmers and land owners income because this is a kind of a side jobs for them. The production and processing subsystem community forests are able to contribute to non-landowners for example direct labor or indirect labor that worked in this industries. In addition, community forests also play a role in providing employment opportunities for productive labor, stimulate other productive economic activities as the continued production of forest products, even minimize the impact of the poor economic condition in village area.

Budiharto (2003), mentions that the community forest is composed of diverse types of vegetation. Dominance of any kind determines the pattern of the existing community forests. Based on the type that dominates the grow room, community forests can be classified into six patterns:

1. Patterns of food crops, community forest is dominated by crops.
2. Patterns of silvopastur, community forest is dominated by plant species which can produce fodder / forage fodder.
3. The pattern of firewood, this community forests dominated by trees wood produces energy.
4. The pattern of horticulture plants, community forest is dominated by types of plants - fruits.
5. The pattern of trade / industrial timber, community forest is dominated by types of plants use for timber trade.
6. Patterns of wood, community forests is dominated by the timber that could produce wood for building materials and utensils.

In forest management, since the first local community has shown their wisdom (indigenous knowledge), which became the most important part in the continuing effort to preserve the natural, environmental, social, economic, and cultural development. Sardjono (2004) argues that traditional wisdom is a culture which includes a number of knowledge with regard to models of sustainable management of natural resources. Many claims that scientific knowledge by expert which is "non indigenous knowledge perspectives", brings a lot of problems, and while the knowledge of "local community" which traditionally would bring the solution to people's lives (Awang 2009). People really understand the true value of their forests, so that they continue to guard it (Hinrichs et al, 2008). The existence of community forest management, directly or indirectly, has recognized a positive impact on economic, social and environment. In a broader sense, forest management by the people, provide reassurance to the people on access to and control over forest resources for their livelihood in and around forest areas, where they rely against economic, social, cultural and spiritual condition around.

Based on the agricultural census of the Central Bureau of Statistics (BPS,2011), the potential of community forests as much as 262,929,193 rods or equivalent to 65,732,298 m3 (average per plant / tree has a volume of 0.25 m3), which consists of a teak tree species , silk tree, mahogany, bamboo, acacia, pine and rosewood. The number of trees ready to cut down as much as 74,806,038 or 18,701,509 m3 rod. The potential for a sizeable community forests are expected to support the forest industry raw material supply. Seeing the potential generated, the community forest management should be able to improve the people's welfare as well as to support the forest industry raw material supply continuity and quality without neglecting the quality of the environment (Sukardayati, 2006).The potential for community forests are not necessarily guarantee an increase in people's income. This is because the timber from community forests have not been able to compete in the market, especially for export products. There is a consumer demand abroad which requires that wood products from Indonesia is the result of products derived from sustainable forest management Hindra (2006), and community forest management is still not referring to aspects of sustainable forest management. Community forest management can not be separated from needs of the community itself, as in the management of community forests contained the term "slash needed". The nature of the people which are subsistence forest management (Hindra, 2006). Harvesting is done in accordance with the needs of the family, such as for paying school fees, wedding celebration or for the construction of their own home. Communities can harvest excessively, when there is high economic pressure.

Sukardayati (2006) says that it is difficult to control harvesting in community forests, it is associated with the lack of legal basis in the harvesting activities. However it will affect the sustainability of community forests itself. Besides the development of community forests to face the challenges that the international community demands that enforces "Ecolabel" certificate for timbers derived from sustainably managed forests, and the issue of global warming which calls for sustainable forest management. Therefore, to ensure the sustainable management of community forests, the government promotes forest certification.

2.4 Forest Certification Schemes

Forest certification aims to provide support for community interests in forest management and helps to promote community timber in national and international market level (Hindra ,2006), through the certification program it is expected to be an incentive in the form of timber prices that high enough and to forest managers will be able to demonstrate that they have been managing community forests sustainably. Hinrichs et al (2008) in his study expressed a real thing that certifications help the clarity of the status of the land, strengthen the position of communities in forest management and acknowledge the capacity and capability of their management. The

introduction of certification by supporters promising market incentives for certification was the main reason for people to be involved in all aspects of the certification.

Recognition of the market, in particular the availability of a significant premium price, interpreted as an effective tool to raise public awareness and gain a long-awaited recognition in the management of community forests. Ideally, projects of forest certification, introducing market aspects in the development phase in order to ensure that local communities fully understand the requirements of the market and buyers are aware of the development.The market's willingness to pay higher prices for products derived from certified forests is a "ray of light" for forest farmers. Market demand particularly in Europe and North America is expected to continue to rise (Haryatno, 2006). If the entire people of non-forest area of 966 thousand hectares have been managed in a sustainable manner through ecolabel certification, then the community forests will occupy a prime position in sustainable forest management in Indonesia (LEI, 2011).

In the process of certification of these lands, supported by aids through the involvement of promoters consisting of local NGOs and private sector organizations (Rohman, 2010). With the certification can provide economic benefits, including the direct benefits and social and environmental benefits that are included in the non-monetary indirect benefit. Certification can give additional impact on the direct financial benefit, namely the premium price and the additional sales volume. The impact of certification on the indirect economic benefit is the reduction in costs as a result of production efficiency and avoid the loss of sales revenue to the market which require certification. The environmental benefits gained from the development of mitigation of the environmental effects of the use of forests and an increase in the measurement of the conservation of biodiversity, ecological functions, such as soil and water. In addition, the social benefits of the certification of this one is the clarification of land rights and conflict resolution. (Simula et al, 2005)
There are several types of forest certification schemes in force, such as Certfor (Chile), Cerflor (Brazil), CSA (Canada), MTCC (Malaysia), AFS (Australia), SFI (USA), ATFs (America), FSC (Europe), PEFC (Europe), and LEI (Indonesia), while some certification schemes in Africa are under developed and mostly under the auspices of PEFC or FSC (Alavi, 2007).Forest certification it self usually in voluntary mechanism. Voluntary ecolabeling is an ecolabel certification which are voluntary and developed through independent agencies. This voluntary certification has been validated in a mandatory certification scheme (Zakiya, 2012). In this study, which examined a certification scheme is developed by FSC certification and certification set by the Ministry of Forestry is TLVS.

2.4.1Forest Stewardship Council (FSC)

According to Van Dam (2005) FSC scheme takes into account activities in the field (in this case forest management) and also evaluate the areas of economic, social and employment policies of the unit management, social relations with the community, and to internalize the environmental standards. Until the end of 2008 approximately 102 million hectares of forests in more than 78 countries have been certified according to FSC standards. (Setyarso, 2009).

Audit of FSC certification in the assessment scale based on the 10 principles and 56 criteria.The 10 principles are as follows (FSC,2009):

1. Forest management shall respect all laws and regulations applicable state.
2. The rights of ownership and long-term use of land and forest resources shall be clearly defined, documented and legally established.
3. The activities of forest management should maintain or enhance social and economic prosperity for workers and local communities in the long term.

4. Forest management activities should support the use of various types of forest products and services efficiently to ensure the sustainability of the economic and social benefits and the forest environment.
5. The formal rights and the rights of indigenous peoples to own, use and manage their lands, territories and forest resources must be respected.
6. Forest management shall conserve biological diversity and its associated values, water resources, soil, ecosystems and landscapes, and maintain the ecological functions and the integrity of the forest.
7. Long-term management objectives and how to achieve it should be stated clearly.
8. Monitoring shall be conducted in accordance with the size and intensity of forest management to assess forest conditions and the impact of management activities on the environment and social.
9. Management activities in forest areas of high conservation value or High Conservation Value Forest (HCVF) must be maintained.
10. Plantations shall be planned and managed according to the principles 1-9. While plantations can give a series of social and economic benefits, plantations should reduce the pressure on forests and supporting the recovery and conservation of natural forests.

2.4.2Timber Legality Verification System (TLVS)

According to Dharmawan et al (2013) Timber Legality Verification System (TLVS) is a tracking system that multiple stakeholder arrange to ensure the legality of the timber being circulated and traded in Indonesia. TLVS is developed to encourage the implementation of government regulations related to trade and the distribution of forest products that are legal in Indonesia. TLVS is applied in Indonesia to ensure that all timber products in circulation and traded in Indonesia have a convincing legal status. As a result, consumers abroad do not need to doubt about the legality of timber from Indonesia. The forest management units are not concerned about the results of timber discredited andtimber industries convinced of the legality of the wood raw material sources, making it also easier to convince the buyers abroad.

TLVS came into force in June 2009 from the Government of Indonesia through the Regulation of the Minister of Forestry No. P.38 / Menhut-II / 2009. It happened when the Minister of Forestry at the time, MS Kaban, approved and adopted the proposals of the parties to make forest certification mandatory according to Standard and Guidelines on Assessment of the Performance of Sustainable Forest Management (SFM) and Timber Legality Verification (VLK). On his way TLVS continuously improved with the revision P.38 / Menhut-II / 2009 into Regulation No. P.68 / Menhut-II / 2011 and the revision of Regulation No. P.45 / Menhut-II / 2012 and Regulation No. P.42 / Menhut-II / 2013. According to Dharmawan et al (2013) TLVS policy conducted by the government of Indonesia with the following intents and purposes:

- Establishing a credible legality verification tool, efficient and fair as one of the efforts to address the problem of illegal logging.
- Providing certainty for markets in Europe, America, Japan, and neighboring states that wood and wood products produced by Indonesia is a product that is legal and comes from legal sources.
- Improving the administration of forest timber administration effectively.
- Being the only system for wood legality prevailing in Indonesia
- Eliminate high-cost economy.
- Opportunities to be free from examinations that lead to high economic costs.
- Establishing a credible legality verification tool, efficient and fair as one of the efforts to address the problem of illegal logging.

- Improve governance in Indonesian forestry and to improve the competitiveness of Indonesian forest products.
- Improving the competitiveness of Indonesian timber products
- Reduce illegal logging and illegal trading.
- Increase people's welfare.

TLVS is the Government's commitment in the fight against illegal logging and illegal timber trade. The goodwill of good forest governance towards sustainable forest management from Indonesian government. There is a demand for timber legality assurance in the form of certification from the international market, particularly from the EU, USA, Japan and Australia. This regulation established as a form of "National Incentive" to anticipate the increasingly widespread demand for timber legality certification scheme of a foreign country, such as FSC, and PEFC (Program for Endorsement of Forest Certification) (Susilawati, 2013).

CHAPTER 3 RESEARCH DESIGN

This chapter describes the research methodology and design, and how this research was conducted. It comprises of: the research framework, the research questions , definition of the key concepts , the research strategy, the research material, and data analysis in order to address the set of research questions .

3.1. Research Framework

According to Verschuren and Doorewaard (2010), research framework is a schematic presentation of the research objective and includes the appropriate steps that need to be taken in order to achieve it.
There are seven steps to construct research framework which is applied to this research as follows:

Step 1: Characterize briefly the objective of the research project
The aim of this research is to describe an event of forest certification through FSC and TLVS schemes implemented by local communites in Gunung Kidul Regency.

Step 2: Determine the research objects
The research objects in this research are the local communities implementing forest management activities through FSC and TLVS schemes and the stakeholders in the research site.

Step 3: Establish the nature of the research perspective
This research provides an insight of forest certification implementation within FSC and TLVS schemes by local community through forest management in Gunung Kidul Regency. Thus, it is practice-oriented research using evaluation approach to bring a comprehensive description.

Step 4: Determine the sources of the research perspective
Theoretical framework of this research is developed by reviewing scientific literature as well as studying existing documentation. Theories and concepts to be used in this research are summarised in Table 1:

Table 1 :Key concepts of the research

Key concepts	***Literature and documentation***
Forest certification and its Issues	- Literature on forest certification -
Assess the benefit and disbenefit of FSC and TLVS certification schemes	- Literature and document on FSC and TLVS. -
Assess the implementation of forest management by local community	- Literature and document on forest management unit (FSC and TLVS)

Step 5: Make a schematic presentation of the research framework
This study seeks to explain and try to find similarities and differences in the management of community forests certified by the FSC or certified by TLVS scheme. The process that reviewed include planning, organizing, implementation and control in the management of community forests through two certification schemes above.This research also tries to explain the trilogy aspect of sustainability, namely economic, social and environmental in relation to the management of community forests through both the certification scheme. Economic impact that want to bee seen

on the research is in the form of a premium price, increase in farmers income, penetration into new market share, keeping the existence in the existing market and shorten the distribution chain of timber product. While the social impact that will studied is in increased participation and awareness of community forest farmers and institutional development of community forest management. Environmental impact that can be examined relate to biodiversity conservation, planting pattern, loggin methods, and hydrological functions of forests.

Overview of the conceptual framework laid out in the study flow chart depicted in figure 1

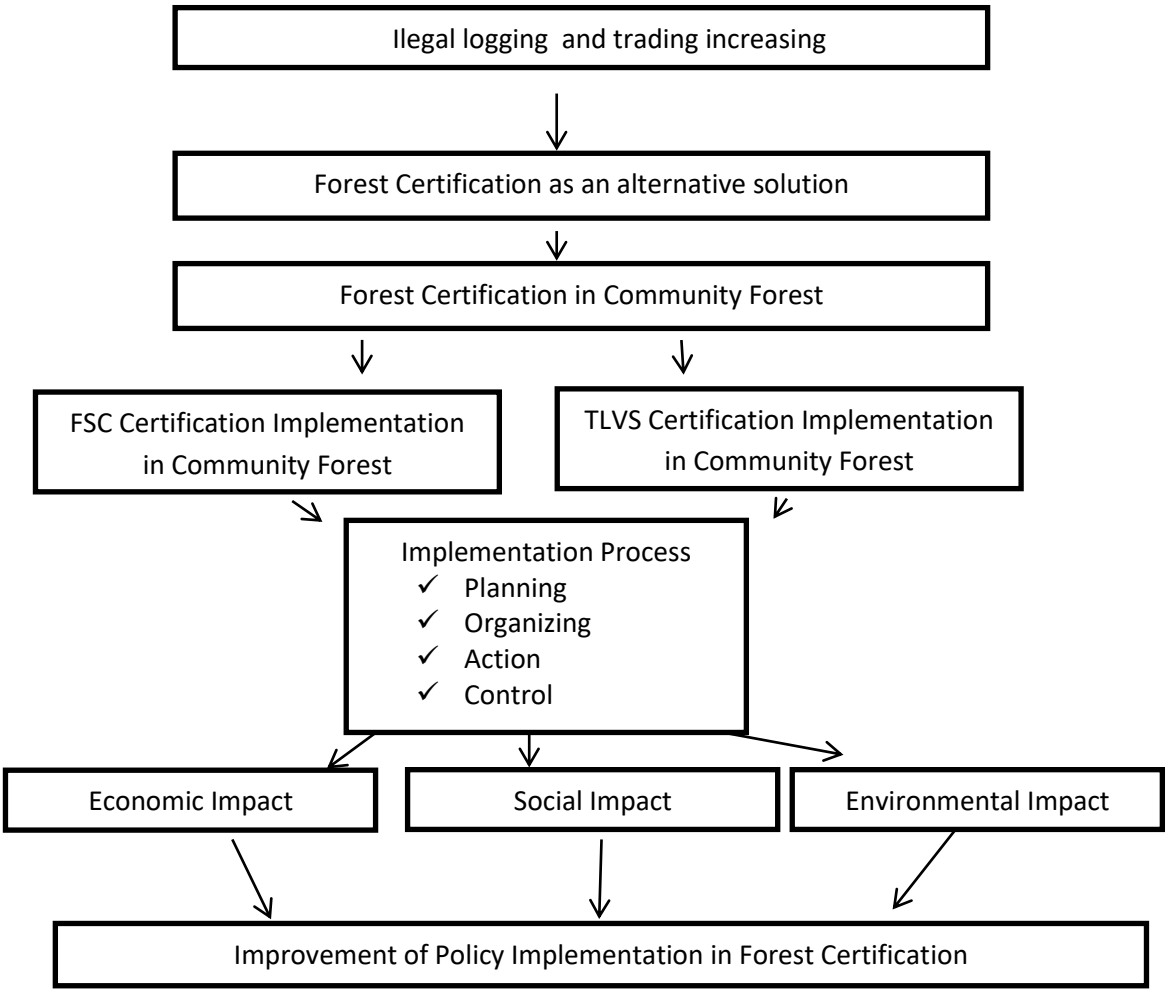

Figure 1 Conceptual Framework

As mentioned above, the steps needed to carry out this research are further described which were integrated in the scheme of figure 2 and described in step 6.

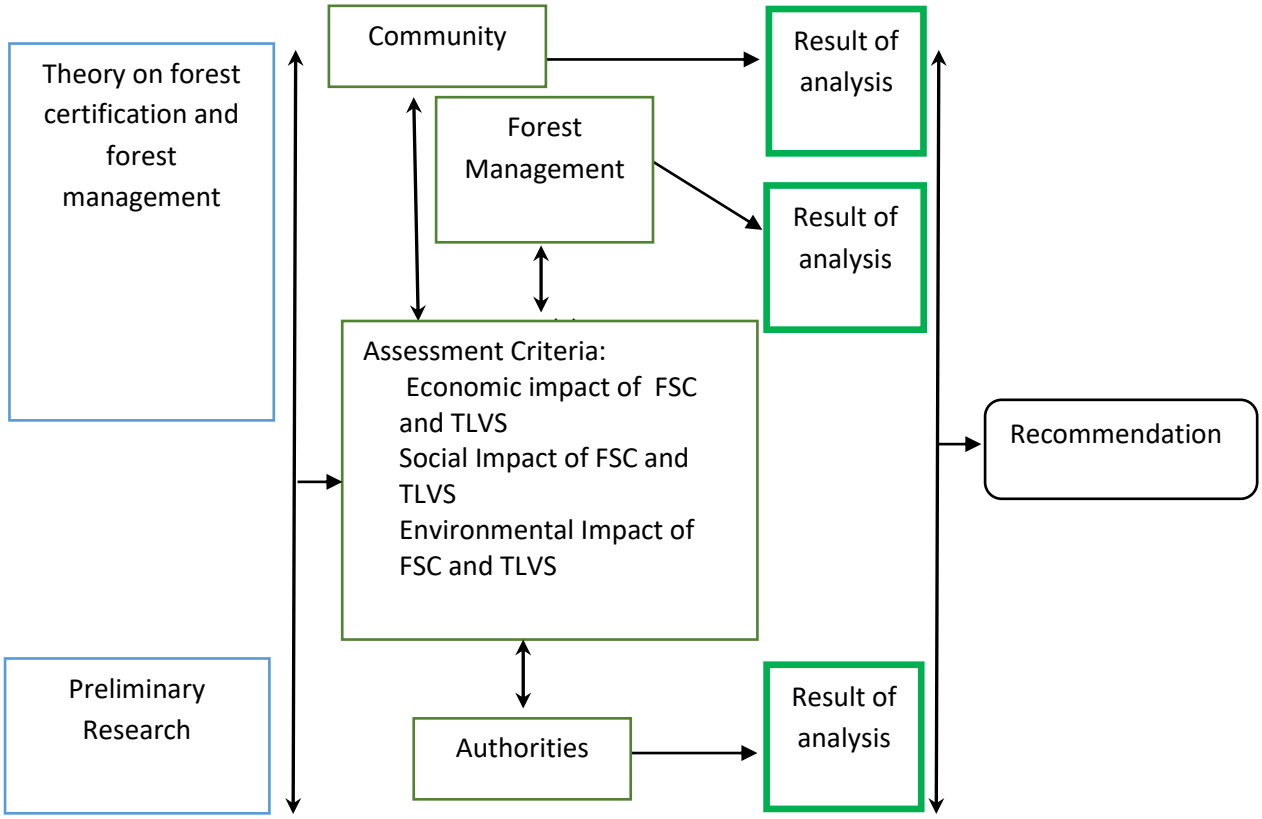

Figure 2. Schematic presentation of research framework

Step 6: Formulation of the research framework in the form of elaborate argumentation. See figure 2 which compiles the different elements and sources of information used for the research purpose of this project.

The course of this research is formulated with the following steps:

(a) Part 1: This research project rationale;
Part 2: Literature review on theories in regard of forest certification and its issues.
Part 3: Literature review on theories in regard of forest management, community based forestry, and preliminary research on FSC and TLVS management planning,
By means of which the research objects will be assessed.

(b) Part 1: The scope of analysis
Part 2: Confronting the result of analysis as the basis for recommendation (d); and
Part 3: Result analysis directly provide recommendation (d)

(c) Promoting forest certification on community forest in Indonesia

Step 7: Check whether the model necessitates any changes

The model does not require any changes.

Once, the outline for the research is scatched by using the central research questions as the baseline. Though, it is important to break it down into subquestions that can be analysed in depth. In section 3.2, the complete set of questions are displayed in order to develop further the research methodology.

3.2. Research Questions

The research questions of this study are formulated as follows:

1. How is community forest management implemented by community forest management unit with FSC certification and the community forest management unit with TLVS certification?
2. What are the factors that influence farmers to join forest certification system (either the FSC or the TLVS schemes?)
3. What are the impacts of FSC and TLVS schemes on community forest management in terms of economic, social and environmental dimensions?

3.3. Working definition of the relevant concepts

For the purpose of this research the following key concepts are defined as follows:
Forest certification: certification of community forest in research area (FSC and TLVS)
Community: The people directly involved in forest management activity within forest certification schemes(farmers) and living in the research site.
Forest Management: The process that includes planning, organizing, implementation and control in the management of community forests through two certification schemes (FSC and TLVS)
Impact: Environmental,social and environmental impact from forest certification activity(FSC and TLVS schemes) received by areas and community.

3.4. Research Strategy

Case study approach is used in this research, specifically to give description of certain object, event, and phenomena. Each research unit will be studied dependently using anevaluative analysis. The result of analysis of each research unit will also be described. An explanatory analysis will be conducted for all the result analysis of the research unit to clearly describe the implementation of forest management activity conducted by community through FSC and TLVS schemes.The result of explanatory analysis will be used to assess the implication of forest certification toward the sustainability of the area.

3.4.1. Research Unit

The decision regarding the number of research unit was made by considering the time constraint that the researcher had for completing this master thesis. Community, authority, local government and NGOs are chosen as research objects. This number is considered sufficient to provide explanatory analysis regarding the role of those objects towards forest management in FSC and TLVS schemes.Two research unit is taken, one community forest which are FSC certified and one community forest with TLVS certification.

Selection of research units to be studied is based on the following criteria:

- There is forest management managed by local community in the research site that have been certified by FSC and TLVS schemes.
- FSC and TLVS forest certification schemes activity lead to impacts in economic , social and environmental dimensions.
- There are local governments, Ministry of Forestry and NGOs promoting and giving contribution to community that conduct forest certification within the area.

3.4.2. Research Boundary

Research boundary is determined to ensure that the goal of this research is achieved within the timeframe. However, it does not necessary mean of decreasing the value of this research.
The following boundary is set for this research:

- The research units are subject to criteria mentioned in section 3.4.1.
- Community as a research unit consist of the people directly involved as the members of group that conduct forest management within FSC and TLVS schemes in Gunung Kidul Regency.
- Forest management includes planning, organizing, implementation and control in the management of community forests through FSC and TLVS certification schemes
- The impacts offorest certification activity assessed in this research are limited to economic,social and environmental impact.

3.5. Research Material

3.5.1. Data and Information Required

The identification of data required for the purpose of this research is based on the set of sub-research questions, as shown in Table 2.

Table 2 Data and information required for the research

Research Questions	*Data/information required to answer the questions*
1.How is community forest management implemented by community forest management unit with FSC certification and the community forest management unit with TLVS certification?	Description of the activities and functions of management including planning, organizing, implementation and controling within FSC and TLVS schemes in Gunung Kidul Regency
2.What are the factors that influence farmers to join forest certification system either the FSC or the TLVS schemes?	Description of the factors that attract farmer to join forest certification (FSC or TLVS) like incentive from government, etc
3.What are the impacts of FSC and TLVS schemes on community forest management in terms of economic, social and environmental dimensions?	Description of economic, social and environmental impact in research area
4.What are the recommended actions to improve the implementation of community forest management under FSC and TLVS schemes?	Result of analysis wil be use as part of recommendation

3.5.2. Research Methodology

Type and sources of data and the method of data collection are presented in Table 3

Table 3 Research methodology

Variable/Sub Variable I. Community Forest Management	Indicator	Data Type	Data Source	Data Colection Method
Planning	1.Objective of Certification	Objective of join certification scheme	Key informants, Farmer groups chairmans Organisation documents	Interview, Document review
	1. Action Plan	Timetable, how the organisasion do the planning.	Key informants, Farmer groups chairmans, Organisation documents	Interview, Document review
Organizing	1. Job Distribution	Organisational structure and job division	Key informants, Farmer groups chairmans, Organisation documents	Interview, Document review
	2. Coordination	Organisation coordination mechanism	Key informants, Farmer groups chairmans, Organisation documents	Interview, Document review
Implementation	1. Preparation	land preparation, socialization mechanism among farmers	Key informants, Farmer groups chairmans, Organisation, Secondary data	Observation, Interview, Document review

	2. Planting	Silvicultural mechanism to tree plant, seedling, crops spacing	Key informants, Farmer groups chairmans, Organisation, Secondary data	Observation, Interview, Document review
	3. Maintenance	Maintenance mechanism of plants	Key informants, Farmer groups chairmans, Organisation, Secondary data	Observation, Interview, Document review
	4. Harvesting	Harvesting location and method, Cutting quota, wood inventory	Key informants, Farmer groups chairmans, Organisation, Secondary data	Observation, Interview, Document review
Control	1. Evaluation	Evaluation method of community forest	Key informants, Farmer groups chairmans, Organisation, Secondary data	Interview, Document review
	2. Reporting	Reporting method	Key informants, Farmer groups chairmans, Organisation, Secondary data	Interview, Document review
	3. Internal Control	Internal Control Method	Key informants, Farmer groups chairmans, Organisation, Secondary data	Interview, Document review

Economic impact	1.Increase of timber price	Farmers Opinions and Perceptions	Member of Farmer groups	Observation, Interview, Document review Quetionairre
	1. Increase the farmer income	Farmers Opinions and Perceptions	Member of Farmer groups	Observation, Interview, Document review Quetionairre
	2. Increase of market share	Farmers Opinions and Perceptions	Member of Farmer groups	Observation, Interview, Document review Quetionairre
	3. Existence in existing market	Farmers Opinions and Perceptions	Member of Farmer groups	Observation, Interview, Document review Quetionairre
	4. Shortening distribution chain	Farmers Opinions and Perceptions	Member of Farmer groups	Observation, Interview, Document review Quetionairre
Social impact	1. Improvement of farmer participation and knowledge about sustainable forestry	Farmers Opinions and Perceptions	Member of Farmer groups	Observation, Interview, Document review Quetionairre
	2. Conflict Management	Farmers Opinions and Perceptions	Member of Farmer groups	Observation, Interview, Document review Quetionairre
Environmental impact	1. Planting Method	Crops type and planting method	Key informants, Farmer groups chairmans, Organisation, Secondary data	Observation, Interview, Document review Quetionairre

	2. Cutting Method	Cutting and harvesting method	Key informants, Farmer groups chairmans, Organisation, Secondary data	Observation, Interview, Document review Quetionairre
	3. Biodiversity Conservation	Biodiversity Awareness	Key informants, Farmer groups chairmans, Organisation, Secondary data	Observation, Interview, Document review Quetionairre
	4. Hydrological Function	Water availability in spring and river	Key informants, Farmer groups chairmans, Organisation, Secondary data	Observation, Interview, Document review Quetionairre

The data collected in this study include data on primary and secondary data. The primary data to be collected in this study consisted of qualitative data, quantitative data and observations.The qualitative data was obtained with semi-structured interviews to informants. Informants in this study consist of the management group of farmers who certified FSC and TLVS because it has the knowledge and experience regarding forest certification program that has been implemented, the village government official which is expected to represent the villagers from the governance within the village point of view, institutions or non-governmental organizations directly related to forest certification program, and Agency of the Ministry of Forestry, the Forest Service and other government agencies involved in forest certification program both FSC and TLVS in Katongan and Kedung Keris villages. Determination of the number of informants was done by using snowball sampling means the number of informants at first slightly but gradually increased depending on the information to be obtained (Sugiyono, 2011).The qualitative data used in collecting information on aspects of the study were evaluated, namely the management (planning, organizing, implementing, monitoring either FSC or TLVS certification and the impacts of the implementation of the programs socially, economically and ecologically.

Quantitative data was collected by survey method using a questionnaire to the people who follow both FSC or TLVS certification and chosen by purposive sampling. Data is used to describe the socio-economic conditions of the people actors FSC forest certifications and TLVS mainly revenue aspects of community forests. Samples for quantitative data are members of farmers who followed FSC or TLVS certification considered as representative or qualified to describe the whole of the population it represents. If the object is less than 100 samples all of object were taken as samples, if the amount of object is more than 100, samples was determined by considering the rules of statistics contained in Lynch (2008) as follows:

$$n = \frac{N}{N \times d^2+1}$$

Description :
n= Sample Size
N = Size of Population
d = tolerance error (sampling error) of 10%
With this formula the sample size for TLVS certified community forests is calculated as 54 people.The number of all farmers that are members of the Association of Margo Mulyo Farmers Group Comunity Forest in Kedung Keris Village which consists of three groups of community forests farmer namely (KTH) Rejeki , KTH and KTH Ngudi Makmur Tani Makmur as many as 119 people with the following calculation:

$$n = \frac{119}{119 \times (0.1)^2 + 1} = 54{,}3 = 54 \text{ farmers}$$

The size of the samples for FSC certified community forests as many as 136 people from Katongan Village consist of three farmer groups namely forest farmer groups of people (KTH) Teak Mulyo, KTH Teak Pendowo and KTH Women Farmers Group (KTW) with calculation as follows :

$$n = \frac{136}{136 \times (0.1)^2 + 1} = 57{,}6 = 58 \text{ farmers}$$

Informants for qualitative data selected by purposive sampling taking into account regarding the competence of implementation of forest certification. Interviews in this study with the snowball system, by finding the key informants interviewed to obtain primary data. Informants in this study are from the farmer groups either with FSC or TLVS certification, villages, the Forestry and Agriculture Regency Service, Ministry of Forestry, NGOs and members of others farmer groups. Observation is done to see the results of the implementation of the program, see the liveliness of the people in following the agenda of certification as well as the implementation of activities towards the activities already scheduled. Observations were carried out on individuals, farmer groups, institutions and the location of the program.

Secondary data in this study is a form of data concerning documents relating to institutional, villages, districts, and counties, management organization farmer groups, location maps, monographs village and village profile and management institutions forest certification, data were collected through literature, comes from the Department of Forestry and Plantation Gunung Kidul Regency, Statistic Beureau , Nglipar Government official, as well as institutions or other agencies were required to complete the necessary research data.

3.6. Data Analysis

3.6.1. Method of Analyzing Data

Research uses less dominant method less design (Creswell, 2013) then used two analytical tools, namely a mix of quantitative and qualitative. In quantitative descriptive analysis, the first step after the data obtained questionnaire then obtained socio-economic picture of members of farmers who followed both FSC certifications or TLVS.Quantitative data were then analyzed using descriptive approach which then becomes an input for further analysis is qualitative analysis. In the quantitative analysis also attempts to portray the income and expenditure of community forest farmers calculated by a simple quantitative analysis (Sajogjo et al, 2003)

The method of calculation is done with the following formulas:

1. Farmers' income from community forests:
Ihr = Σ farmer income from community forest products
Description :
Ihr = The total income of the farmers' community forest per year (in Rupiah) farmers' income from forest products people = Revenue earned from the sale of wood and other plant

2.Farmers' income from non-community forest:
Inhr = Σ income of farmers of non-comunity forest products
Description
Inhr = The total income of farmers of non-forest products (in Rupiah) Revenues from non-forest products = Result livestock, trade,as well as wage or salary and other income sources.

3. The total income of farmers:
Itot = Ihr + Inhr
Description :
Itot = Number of total household income of farmers
Ihr = total revenue from community forest products
Inhr = total revenue from non-community forest products

4. Calculate the per capita household income of comunity forest farmers
Ipkhr = Itot / ΣAK
Description:
Ipkhr = per capita household income per year of community forests
Itot = total household income from community forest products
ΣAK = Number of family members

5. Calculate the per capita income of non-forest folk
Ipknhr = Itrtnhr / ΣAK
Description:
Ipknhr = Income per capita per year of non-forest folk
Itrtnhr = total household income from non-forest folk
ΣAK = Number of family members
The percentage of revenue from community forests to total revenue:
Ihr% = (Ihr / Itot) x 100%
Description:
Ihr% = Percentage of revenues from community forests
Ihr = total income from community forests

Itot = total income of farm households

6. Calculate the total expenditure
Ctot = ΣC
Description:
Ctot = Total household expenditure over a period of one year
ΣC = Total costs incurred to meet needs

7. Percentage of total household income to total expenditure
Itot% = (Itot / Ctot) x 100%
Description:
Itot% = Percentage of total household income to total expenditure
Itrt = total household income
Crt = total household expenditure

Quantitative data presented numerically with the proportion of the percentage (%) in the form of a diagram or table based on the results of the questionnaire answers of the respondents (Sugiyono, 2011). Quantitative data was used to describe income of community forest farmer group members both FSC certified and TLVS in the research site.The second analytical method used was qualitative descriptive analysis method, which is used to describe the analysis of the implementation of the implementation of FSC forest certification schemes as well as TLVS measured from community forest management by considering the social, economic and ecological aspect. Data have been obtained from the interviews are presented in narrative form and tables to be easily understood. Then weave relevance of data obtained in the field so as to form a collection of information to answer the problem formulated in the formulation of the problem.

The schematic presentation of analytical framework of this master thesis is shown in Figure 2.

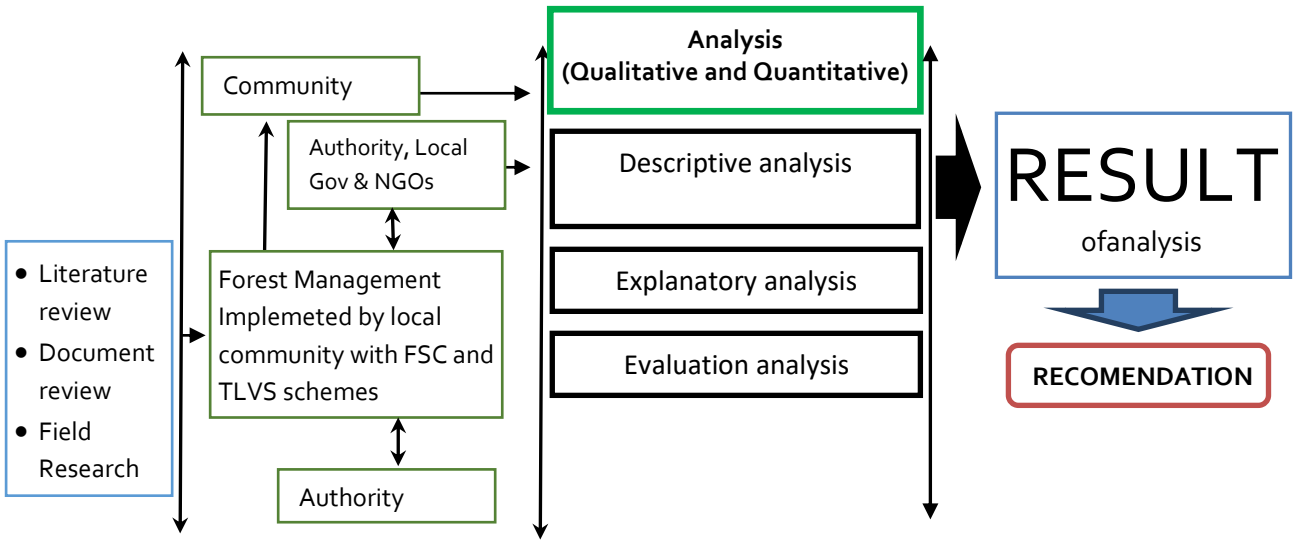

Figure 3 Schematic presentation of analytical framework

The data analysis on this research will be conducted with the following sequences:

(a) First step is conducting review on theories in regard of forest certification in community forest management; and doing preliminary research by observation on research site in Gunung Kidul Regency. These theories will provide theoritical basis for the analysis.To seek the answer of sub research question number 1.1 and 1.2, this study will use descriptive

analysis by conducting in-depth interview to local community (operator), studying on literature and empirical documents, and doing observation in the research site.

(b) The second step is applying evaluative analysis It will be done to see the FSC and TLVS schemes toward forest management in research site

(c) The next step is to conduct in depth interview to authority,NGO andfarmer group and making a survey to farmer group members that directly involved into forest management activity to see economic ,social and environmental impact

(d) Recommendations would be derived from the result of analysis in (a), (b) and (c).

CHAPTER 4.RESULT AND DISCUSSION

This chapter shows the results of analys of FSC and TLVS forest certification scheme implementation in Gunung Kidul Regency. First will discuss about background information and use quantitative analysis to describe social economic characteristics of farmers in research area moreover about Implementation and management of forest certification analyzed using evaluation, explanatory and descriptive analysis.

4.1 Background Information

4.1.1Geographical Focus (Gunung Kidul and Nglipar)

General conditions of Gunung Kidul obtained from Local Government Work Plan Gunung Kidul in 2013 (Regional Development Planning Board Gunung Kidul in 2013). Gunung Kidul Regency is one of regencies in Yogyakarta Province, the Capital city is Wonosari located 39 km southeast of the city of Yogyakarta. Geographically Gunung Kidul is at 7 46 SL - 8 09 SL and 21 EL 110 - 110 50 EL, with an area of 1485.36 km2, or approximately 46.63% of the area of Yogyakarta Province.

Gunung Kidul district'sare as follows:
1. Wes,t Sleman Regency and Regency of Bantul Yogyakarta Province.
2 North, Regency of Klaten and Sukoharjo Central Java Province.
3. East, Wonogiri Regency, Central Java Province.
4. South , the Indian Ocean.
Based on the topographic conditions of Gunung Kidul is divided into three development zones;
1. The northern zone is called the Great Batur region at an altitude of 200-700 meters above sea level. The situation is hilly and there is a river on the land and water resources as well as the soil can be dug wells depth of 6 -12 meters above sea level. Lateristik volcanic soil type, while rock condition is dasiet and andesiet. This region includes the Patuk, Gedangsari, Nglipar, Ngawen, Semin, and North Ponjong District.
2. The middle zone called Ledok development Wonosari region, with an altitude of 150-200 meters above sea level. If there is still a long dry springs. The type of soil is Margaliet. There is a river on the land, but in the dry season dry. In this section there are groundwater at a depth of 60 -120 m below the ground surface. This region includes the District Playen, Wonosari, Karangmojo,Central Ponjong and northern part of Semanu.
3. The southern zone is called the development region ofGunung Sewu (Duizon gebergton or Zuider gebergton), with an altitude of 100-300 meters above sea level. Constituent bedrock is limestone with a characteristic conical hills (Conical limestone) and the karst area. Underground riversare often found. The south zone covers districts Saptosari, Paliyan, Girisubo, Tanjungsari, Tepus, Rongkop, Purwosari, Bake, South Ponjong, and the southern part of Semanu.

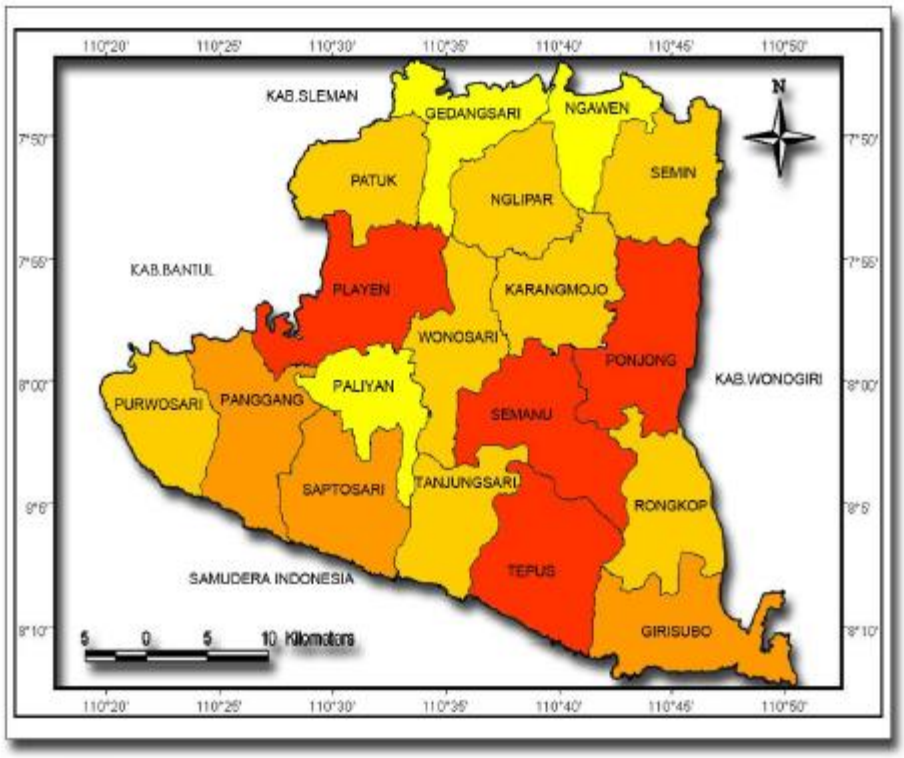

Figure 4 Maps of Gunung Kidul (Gunung Kidul Planning Agency 2014)

The study was conducted in two villages located in the sub-district of Gunung Kidul district Nglipar. For the general condition Nglipar districts will be described, as follows:

General condition of the District Nglipar

The general condition of the District Nglipar obtained from Monograph District and Sub-District Library Nglipar in 2013. Figures Nglipar subdistrict located in the northern zone of Gunung Kidul and consists of seven villages namely Kedung Keris, Nglipar, Pengkol, Kedungpoh, Katongan, Pilanrejo, and Natah, and comprises of 53 Hamlet, 53 RW, 283 RT. The village that has the greatest area is Katongan village with an area of 1356.10 ha ie 18.36% of the area of the district. while The smallest village is the Natah Village with an area of 796.8 hectares or 10.79% of the area of the district.

The boundaries of the District of Nglipar are as follows:

1. North: District of Gedangsari and District Ngawen.
2. East: Sub-District and District Ngawen Karangmojo.
3. South: District of Karangmojo and District Wonosari.
4. West: District Gedangsari.

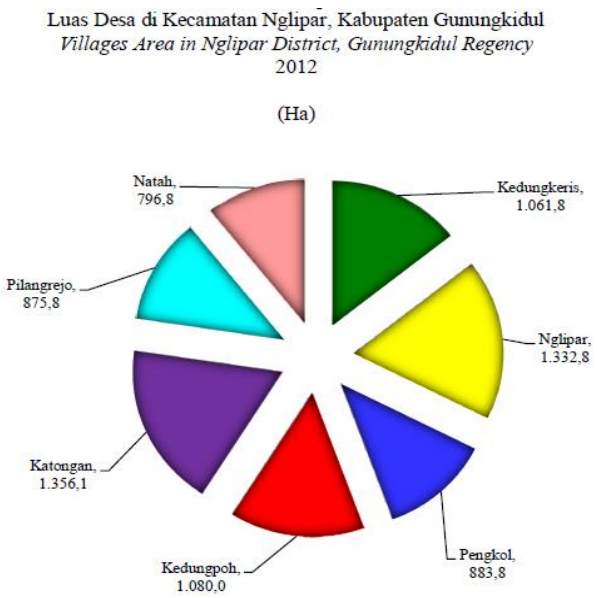

Figure 5 Area of Villages in Nglipar District (Gunung Kidul Statistic Bureau 2014)

Location of the District Nglipar in Baturagung zone with an elevation of 250-70 meters above sea level, with a distance of 11 km from the location of the district and 40 km from the location of the province. Conditions is hilly territory most vulnerable to landslides. Lateristik volcanic soil types. Potential area includes use of land for rice fields (irrigated and rainfed), dry ground (yard, garden), protected forests and others. Irrigated rice area is 519.95 ha, 0.34 ha of rainfed rice field. Utilization of dry land for the yard of 1834.32 ha, moor / garden area of 3050.41 ha. As for the protected forest area of 1444.30 ha and others covering 200.78 ha. Soil fertility levels are divided into two, for 40% of arable land and 60% of degraded land. Average temperature is 28 ° C. Rainfall is 2,459 mm / year, 88 mm / day, there is a river on the surface. According to the December 31, 2012 data from the Bureau of Statistics Gunung Kidul Regency, the total population is 29,865 inhabitants, with the division of the male psyche as much as 14,471 and 15,394 women's lives. The number of households is 8740 inhabitants with the population density of 563 inhabitants / km2.

4.1.2 Respondents Characteristics

In this study, the average age of respondents was between 36-55 years, or about 29.31 to 44.82% while the least is the respondents by age class 25-35 years ranged from 1.74 to 3.70% . Age of respondents are presented in Table 4

Table 4. Respondent Description by age

Indicator	TLVS Farmer Group		FSC Farmer Group	
Age	Total	Percentage (%)	Total	Percentage (%)
25-35	2	3.70	1	1.74
36-45	24	44,46	17	29.31
46-55	13	24.07	26	44.82
>55	15	27.77	14	24.13
	54	100	58	100

This condition is feared to be a problem in the development of Sustainable Community Forest in the future, because only elderly farmers who still live in the village and manage community forests. If there is no next generation, Sustainable Farm Forestry business concern in the foreseeable future will dim even disappear.An overview of the respondents certified community forest farmers in two villages mostly belong to the elderly (old people) with average of 49 years. It can be concluded that farmers in the village community forest in Nglipar and Gunung Kidul village mostly of old age. This is due to the fact that most of the young population (20-40 years) in both villages work outside the village, or migrated to other districts, which is termed Mboro.

Education Levels

Table 5 Education levels of the respondents

Indicator Education Level	Respondent Total	Percentage
Not finish elementery school	11	9.73
Elementry school	53	46.9
Junior high	34	30.97
High school	12	10.61
College education	2	2.73

Looking at the respondent's educational level the major category is a graduate elementary school which amounts to 53 respondents, or 46.90%, while 35 respondents (30.97%)finished from junior high school 12 respondents (10.61%) are high school graduates. While those that did not completed basic education are 11 respondents (9.73%) and the remaining 2 respondents (2.3%)had higher education. Brief description of the education levels of respondents is shown in Table 5.

Low levels of education can be attributed to the very high costs of higher education. Low education levels are still cause limited capacity so that people have limited options to find job, usually they turn into community forest farmers or migrate to other areas to find work. The low level of education also affect the attitudes and motivation of the people (Supriya, 2005).

Land tenure

Under the tenure of all respondents admitted that these lands belong to which they manage themselves. According to extensive holdings as many as 89 respondents (78.76%). have a forest area between 01 to 0.5 hectares. A total of 15 respondents (13.27%) of forest area own 0,5- 1 hectare. A total of 5 respondents (4.44%) 1-2 hectares of forest land, and as many as 4 respondents (3.53%) of forest area is greater than 2 hectares. Here we can see that the narrow land ownership which is only around 0.1-0.5 hectares dominate land ownership

Table 6 Respondents Distribution Aaccording to Land ownership

Indicator Land Ownership (ha)	Respondent Total	Percentage (%)
0,1-0,5	88	78.76
0,5-1	15	13.27
1-2	5	4.44
>2	4	3.53

Income and Expenditure of Respondents

This income of farmers calculated within the past year from the acquisition of the respondents work either from the community forest or outside the forestry products. Revenues from community forests derived from the sale of timber and crops in a farmer's land, while for non-forest's income was derived from livestock, trade, wages, and others. Respondent income data are shown in Table 7

Table 7 Respondent Income Sources (Indonesian Rupiah)

Income source	Total	Average
Wood/Timber	Rp 730,270,000	Rp 6,462,566
Seasonal Crops	Rp 257,590,000	Rp.2,279,557
Non Community Forest	Rp. 763,420,000	Rp.3,685,212

Table 7 gives information that the community forest income divided into income from timber and crops. Wood generate more revenue than crops. As for income from community forests is greater than the income from non-community forest. First, this because the majority of respondents that worked as farmers seek community forest and commodity from it as source of income.

It is also very concerned with historical background, where the village in few decades ago, were poor villages, the soil conditions were very critical and can not be planted. At that time many young people became Mboro to meet the needs of family life. The habit continued til today and usually

done by men, while women and children stay in the village to keep the 'property' of them. At the end of the rainy season people plant perennials in the garden, moor, and ricefield. Plants are taken care of by the family before entering the dry season. In the dry season there were no job opportunities in the village and the head of the family work to be a merchant in city, construction workers, or become temporary migrant workers (Mboro). Planted trees were left to adapt to natural condition with just little treatment by the family because family labor is reduced. According to their philosophy they believed that the best way to plant trees is to let the trees grow naturally because people believe that without being touched with special care the tree will continue to grow.

Spending of respondents calculated for all purposes ranging from annual fixed requirements, incidental needs, and other needs incurred in one year. Every household needs of different family members affected number and types of needs. Respondents expenditure data are presented in Table 8

Table 8 Expenditure Indicators of respondents

Expenditure Indicator	Amount/Year (In Rupiah)	Average/Year (In Rupiah)
Daily Need		
Food	Rp 771,200,000	Rp 6,824,778
Clothes	Rp 94,950,000	Rp 840,265
Education	Rp 160,900,000	Rp 1,423,893
Incidental Need		
Wedding Ceremony	Rp 57,000,000	Rp 504,424
Circumcission	Rp 15,500,000	Rp 137,168
Health	Rp 146,320,000	Rp 1,294,867
Household appliance	Rp 83,324,000	Rp 737,380
Other expenses	Rp 15,310,000	Rp 135,486
Saving	Rp 13,540,000	Rp 119,823

The allocation of household expenditure respondent community forest farmers is for food. As for the smallest expenditure allocation is for the purpose of saving money. The average for fixed costs

derived from the amount of total annual expenditure of each household divided by the total number of respondents. This is because each household cost is different for each needs and the same occur in meeting the annual fixed expenses. From the calculation obtained from the income of the respondents it know that some money were used for savings. The first is to prove besides to finance the necessities of life, there is still excess revenue that can be used as savings by the respondents, so it is important for savings in the future. It also proves the respondent income from community forests provide greater results in the total revenue. Moreover calculation of income and expenses calculated were used to determine the contribution of forests to the revenue and expenditure of the people. Contribution of community forests were divided into community forest revenue contribution of wood to the total income and expenditure, as well as revenue contribution from the community forest crops to total revenue and expenditure. Moreover, it can also be calculated the contribution of community forests (wood and crops) on revenues and expenditures. The calculation results can be seen in Table 9

Table9 Percentage of Community Forest Income

Indicator	Contribution
Percentage of income from wood/timber in community forest	47.34 %
Percentage of income from seasonal crops in community forest	16.71 %
Persentage of total income non community forest toward total income	39.95 %

Table 9 explains that community forests accounted for 60.5% (from 47.34% (wood) plus 16.71% (crops)) to total revenue. While the results of non community forest income only accounted for 39.95% of revenue . This shows that the respondents income sufficient to finance their daily needs. Timber forest products from community forest to make greater contributions toward total income and total expenditure. According Suharjito (2000), only a community forest and incidental by product revenue in the range of not more than 10% of total revenue. But the community forest in Gunung Kidul were felt to have a very important role and can be a useful thing continuously because it provides income greater than 10% of the total revenue. A large contribution of community forest in Gunung Kidul have a positive impact for the economic, ecological and social reasons.

4.1.3 Community Forest in Gunung Kidul

Gunung Kidul Regency is one area that is renowned for its success in developing community forests, which is largely dominated by teak stands. Of the total area of Gunung Kidul of 148,536 ha, the current community forest occupies an area of 16,119 ha, with a land area of potential for community forest development covering an area of 50 144 ha. Most of the land in Gunung Kidul is dry land which are generally have poor performance, either by nature or due to the lack of proper land use. Such lands are actually more appropriate if covered by vegetation throughout the year. Besides

land with a slope of more than 45 degrees, soil is thin, easy to move or eroted, located in banks of the river, around the spring and requires a relatively level land cover tightly.

Based on information from the department of forestry and plantation Gunung Kidul regency,the average level of land ownership by farmers only 0.5-1 ha of arable land. Gunung Kidul is narrow but land as mentioned are many which still cultivated for the seasonal crops cultivation (rice), although the results were relatively small. This kind of land use will result vulnerable to loss of quality and carrying capacity as well as to the preservation of the environment. Community forest in Gunung Kidul mostly composed of several types of vegetation; of which kind of Teak (Tectona grandis), Acacia (Acacia auriculiformis), Mahogany (Swietenia microphylla), Silk tree (Paraserianthes falcataria), Albizia (Samanea saman), coconut (Cocos nucifera), Breadfruit (Artocarpus altilis), Turi (Sesbania grandiflora), Cinese (Gliricidia sepium), Bamboo (Phyllostachys bambusoides). Some types of trees that produce fruits, such as mango, rambutan, starfruit, grapefruit, papaya, and bananas are also mixed in a stretch of community forests. In the karst area of Gunung Kidul, development of community forests has changed the regional conditions from arid, hot and dry; to be more green, lush, cool, and comfortable. In addition, community forests also play an important role in supporting the economic and social life of the community, especially when agricultural land does not produce. From community forests, people can meet various kinds of needs, through harvesting a variety of crops cultivated.

Potential community forest consists of potential timber forest products, both wood utensils and firewood, non-timber forest products such as: leaves, green forage, and fruits, as well as the structure and composition of vegetation types constituent. IVI (Importance Value Index) for the type of Teak is still the highest, followed by Acacia, Mahogany, and new types of others. Of the value of IVI it can be stated that the type of teak to the rate of growth poles has contributed the most to the formation and stability of the forest ecosystems of the people, then the type of Acacia, moreover another type, and the latter is a type of mahogany. (Iskandar, 2009)

From interviews with Shorea NGO which provides assistance to community forest in the regency of Gunung Kidul it was revealed that wood marketing channels in Gunung Kidul regency were from the community forest / farmers distributed inside the village and outside the village. Distribution chain in the village divided in two lines: (1) from the farmers directly to users or craftsmen, and (2) of the farmers purchased by wood collector then purchased by craftsmen or traders / sawmill. While marketing outside the village involves many actors. Both lines outside the village and in the villages that do not directly to users and always through wood collector. Wood collector are people who came from the village who generally are the owners of capital and almost always there in every village. This wood collector do business only by order and only a few wood collector who work on a regular basis, regardless of the order. According to an interview with the department of forestry and plantation regency of Gunung Kidul teak production in community forest of Gunung Kidul in 2013 reached about 86,633 m3 and rose significantly compared to the year 2012 (66 101 m3), in 2011 (51 167 m3) and in 2010 (36 669 m3) , The wood was supplied timber industry in Java, especially for areas of Yogyakarta and Central Java. Wood production from Gunung Kidul as well as from other areas is still not able to meet the huge demand for raw materials needs of the timber industry in Java. The high demand for wood raw materials derived from community forests have a positive

impact for the community to develop a woody timber plant and expecting to be able to increase revenue.

Based on field observations farmers in Gunung Kidul divide their land into 3 categories as follows

Moor

Wono

Yard/home garden

Figure 6 Type of land division in Gunung Kidul

1. Wono an area dedicated to plant trees, not to plant crops, located relatively far away from the farmhouses. Land in these areas is a typical kind of rocks and infertile, while the land is hilly and steep
2. Moor (fields): areas for the production of timber plants. Crops, trees and firewood are generally planted in intercropping. Land use in these areas is more intensive than in forest areas
3. Yard (home garden): areas around farmhouses. The trees are planted along the boundary line where the area in which vegetables and food crops usually grown

4.2 Implementation of FSC Forest Certification Schemes in Gunung Kidul

Community forests in the area of FSC-certified research includes two hamlets in the village of Katongan, the Jeruk Legi and Nglebak sub village, research location generally dominated by plants of the Teak type (Tectona grandis). One that characterizes the community forest is in an area generally plant species varied types of other crops are often cultivated by the community include Mahogany (Swietenia mahogany), Acacia (Acacia mangium), Silk tree (Paraserianthes falcataria) and Albasia (Albizia saman). Determination of crop choices of that would be managed is very important for the interest of PT Dipantara (PT Dipantara is company thay buy and give management service to farmer in research area). This is related to the ability and availability of

human and financial resources which are limited. Temporarily PT Dipantara set only one type of plant / commercial tree that will be managed which is teak (Tectona grandis), from the type of wood to be acquired by the company through members auxiliaries.

In general, people who encountered forest agriculture consists of three models of management. The first model is community forests by planting teak using a system that tends to monoculture, which in local varlance is often referred to as "Wono". In this model, most of the space on a farmer's land is used for woody plants are predominantly teak. Other types of wood is still possible to be found, but the amounts are relatively less. Crops, such as maize, cassava, peanuts and soybeans are sometimes also found in the area of land, especially in the age of the teak tree when still relatively young. Crops are planted to take advantage of empty land area under teak stands. However, if the teak stands canopy have started to cover the area of land, or about 70% of land area already covered by teak stands, the planting of crops is not done anymore because the intensity of sunlight that has been diminishing and competition for soil nutrients by crops increase. The second model in the planting pattern of the study sites are known in local parlance as "moor". On this moor models most of the space on a farmer's land is used for cultivation of crops and horticulture. Teak or other wood types commonly encountered as limiting crop land or also in the form of bolt-bolt, so that more resemble agroforestry systems. Both the pattern moor and wono, it appears that farmers have made use of their land area as best as possible with the kind of woody plants or crops that are difficult to find areas of land that are still empty .While third model, namely garden / yard only a few in number due to the limitations of space and distance between citizens homes around the village with their land. Community forest located in the area of research built on land owned by farmers. The layout of the community forests are generally not far away from the residence of farmers. Land area owned by farmer households are generally relatively small and most are under 1 ha.

4.2.1 Planning

Under the FSC principles Planning is an important thing to do in forest management. The principle states that the management plan should be appropriate to the size and intensity of activity, recorded and must do. In this stage PT Dipantara has made 5-year management plan and yearly work plan. Planning is the basis for the implementation of activities in the field of community forests. Based on interviews with the PT Dipantara officer is know that working forest management plan describes the system of community forest management applied by members of farmers built by PT Dipantara. The plan is flexible means that in the course of forest management will be carried out if necessary to change so any change in the management plan will be an integral part. Management plan prepared by PT Dipantara and run by members of the target farmer groups and applies the 5-year period include:

1. The purpose of community forest management by PT Dipantara
2. The area of forest management
3. The socio-economic condition of the people in the area of community forest management
4. How to achieve management objectives, methods of harvesting and silviculture to ensure sustainability
5. Limit Sustain Logging
6. Social aspects in the management of community forests
7. The live aspect of environmental management.
8. The maps show the area of forest-protected areas, planned management and land

ownership

9. The planning period

Management plan comprises two documents which are the technical plan document and the community forest management plan document which setting forest products. Technical plan document consist of rules of implementation of forest nurseries, maintenance, and harvesting. The plan also shows the time, place, amount, and the target area of community forest plants. Although preparation and planning arrangement of the area was quite good but not all activities can be carried out according to plan manage it. This is because the specific in power of community forest management is still in the hands of individual owners of forest land. For example, logging can not be set because it still depends on the needs of the owners of these lands. While the arrangement plan document containing the results of forest management area, the potential for cutting wood and determination etat (cutting quota), PT Dipantara determine cutting quota on the volume etat basis because they think etat volume more easily controlled than the amount of trees. This is because each tree has a number of different volumes

4.2.2 Organizing

PT Dipantara is a statutory body established in 2006 by notarial deed No. 9 dated 6 April 2006, initially PT Dipantara operates in Pacitan, East Java and in line with the development of the company in 2007 the company expanding into the area of Gunung Kidul Yogyakarta Province. At first the target of farmer groups from PT Dipantara only up to 10 farmer groups, but now the company has trained more than 98 farmer groups scattered in Gunung Kidul Regency and Pacitan. To carry out its activities PT Dipantara appoint a site manager in charge of managing the administrative issues and technical matters related to the management of community forests. The manager assisted by an administrative staff and four assistant manager for the production and forest management organizations. At the level of farmer groups also have the composition of the management group in charge of liaison with general affairs. While organization at the level of farmers' groups consist of a chairman, secretary, treasurer, production unit and forest management unit.

Status of forest management conducted by PT Dipantara that is currently be the focus of work is people legal crop which are in the forest land owned by the members. This can be evidenced by the documents of land ownership which is legitimate and recognized by the government, namely;

1. The land certificate,
2. Girik (Land Ownership Document in colonial era)
3. SPPT (Notice of Payable Tax),
4. Certificate from the Village Head,
5. Other supporting documents (eg prove of inheritance),

Documents mentioned above are also a requirement for everyone who register to become a member must submit a copy of one of the official documents that farmers claimed as registered ownership of the land . In addition to document security of tenure, individual land boundary was already quite clear where the majority were already use such artificial boundaries like solid block and there are still a natural border in the form of plants or ditch. So that the principle of the rights

of tenure and responsibilities require to be fulfilled. With the certainty of land ownership members managed, traceability of the origin of source of raw material can be responsible and sustainable.

Such activities were run by groups of farmers be assisted PT Dipantara. Implementation was done by promoting the participation of members of the group in each activities. In carrying out its activities PT Dipantara gets assistance and funding from TFT (Tropical Forest Trust) a foreign NGO who paid great attention to sustainable forest management. Other stakeholders namely the government and forestry agencies not directly involved in the certification but stakeholders have a role in the level of collective choice by providing assistance and formulate policies related to forest management that is ultimately rooted in the rules of forest management in farmer groups. Although the government and the forest service does not provide financial assistance in the certification process, but the government and forestry services providing assistance through reforestation programs, certificates of land , and counseling to help farmers in developing sustainable community forest. Community forest management in the study site, in particular on the Wono model generally still manage with traditional ways. The farmers cultivated planting of teak or other types by observing aspects of silviculture plants which are studied for generations with the help of technical assistance from the PT Dipantara. Stages in forest cultivation activities of the people in the study area consists of several activities which include the activities of seedlings, land preparation, planting, maintenance and harvesting.

4.2.3 Implementation

Seedlings

The seed or plant seeds used by farmers generally come from the area of land they own, either in the form of seeds or natural seedlings . In addition, farmers also obtain help seeds or seedlings from PT Dipantara. Help from PT Dipantara generally channeled through the Forest Farmers Group (KTH) and is given free of charge. Help from PT Dipantara usually given directly to their target groups with a source of help comes from a furniture company or a factory in cooperation with PT Dipantara. Seeds or seedlings which are given is a teak (Tectona grandis) in collaboration with companies of furniture that uses wood certified. Furniture companies are also working with the TFT (Tropical Forest Trust) an NGO from the UK that focus on developing FSC certification in tropical forests around the world, which will track the TFT of custody of timber sold by PTDipantara to furniture companies. In Gunung Kidul, there were 41 KTH a guided by PT Dipantara.

Land Preparation and Planting

The initial step in the manufacturing plant is in the form of land clearing from weeds. The next step is the cultivation of land, which includes tilling the soil, cut roots of the weeds, smoothing and cleaning the soil in a planting line. After devised bolt to facilitate planting in accordance with spacing rule. Seedling planting hole prepared to dig a hole as deep as 30 x 30 cm. Allowed the planting hole three to four days before planting so that the acid content of the soil is lost. Spacing is used in general is a 2 x 2 m. Planting seeds in the planting hole is done by first releasing a poly bag or a plastic bag of seeds. Polybag released slowly and maintained in order to protect the roots of seedlings media remains compact. Once the seeds are planted, the planting hole with soil compacted around it.

Plant Maintenance

Plant maintenance activities have been conducted in study sites covering various stages of activity. The first stages are weeding activities aimed to reducing and controlling weeds competitor in obtaining plant nutrient elements, sunlight and water. Illustration of teak stands that have been cleared weeds presented as follows

Figure 7 Soil Condition after land clearing

The second activity stage is fertilization. Fertilization is important in maintaining the balance of nutrients in the soil that provide better opportunities for plant to growth. Initial fertilizing manure is 10 kg + 10 grams of TSP / holes for the parameters of height and 10 kg of manure + 20 grams of TSP / hole parameters for stem diameter.After initial fertilization then given further fertilizer that is, when the age of 3 months with a dose of NPK fertilizer 50 gr / tree, then continued at the age of 6 months at a dose of 100 g NPK / tree. NPK fertilizer application technique done by making a hole approximately 5-10 cm deep around plants with a distance of 30 cm. Then fertilizer is inserted into the hole around the plant and distributed evenly, then covered with soil fertilizer.

The third activity stage is stitching. The purpose of the stitching plant is to replace dead plants or plants which have abnormal growth so that the number of plants in a particular area can be maintained. The fourth activity is watering. Watering done to meet the water availability for the stand and to help growth. Watering is carried out only when necessary, i,e, when there is no rain for a long time or when the new crop is planted. The fifth activity that has been carried out in the context of the maintenance of the plant is the eradication of pests and diseases. Pests that usually encountered forest areas are borer wood insect and tree trunks and leaves insects. Among other termites, pests powder termites is the most destructing. Pests powder termites causes the stem to swell, perforated, leaving powder colleagues stems, shoots to wither and dry so then the plant will die (Figure 8)

Figure 8 Teak attacked by pest

Eradication can be done by cut and separated from other plants. While signs of other attacks caused by insect leaf is a leaf is not intact, perforated, and the leaves gone, leaving only the dry leaves. This pest attacks led to a stands growth in disturbed because the leaves can not photosynthesize perfectly, stands cursory look healthy, but when the logs cutted it will look empty. If the stem borer pest has been attacking the tree, it will be very difficult to restore the condition of the tree because this pest quickly attack the main stem which will obstruct the rise of nutrients from the soil to the other sections (branches, leaves). This will cause disruption of stand growth. How to eradication that is by planting patterns interspersed with other types to divert leaf borer. The sixth activity was pruning a branch . Branch pruning is an attempt to reduce branches that can cause the appearance of knots in the wood. This aims to get off the main stem and branching. Pruning implementation tool that has two sides, one side in the form of saws and the other side in the form of a pair of scissors (Figure 9). In practice, it use average branch pruning saws produce the stem so as not to cause timber defects or does not cause disease. However, in the implementation of pruning should be tailored to the degree of hardness and the frequency of pruning branches. Phase 1 can be carried out on the stand age of 3-5 years, with the rate cuts of 50% of the total height.

Figure 9 Pruning process

Things to avoid in the implementation of this pruning is not leaving the rest of the branches on the main stem so that the former can be closed to cambium branch cuts. If branch cutting is too deep it will cause cuts large enough so that require a long time to be closed again. Branch pruning can stimulate plant growth because the nutrients are absorbed from the soil will be distributed on the main trunk and the tree canopy. Its should felled tree branch leaves no part of the branch, all branches up to underarm average cut in order not to cause substantial injury that is difficult to recover. The seventh activity is thinning. Thinning is a silvicultural treatments by providing arrangements growing space for plants to do the selection of stands which have a less good growth, so at the end of cycle stands evenly obtained, healthy, straight-trunked, and flawless wood. The ultimate goal of thinning activities is to increase growth so that at the end of the cycle is obtained stand with high quality and volume. There are some principles that can serve as a guide thinning

farmer in a field that is the main target is the residual stand thinning activities qualified by the end of cycle instead of the timber thining the implementation of the thinning is done properly and correctly. In the thinning is done against tree that had a crooked growth and disease.

Harvesting

After teaks already 15 years old and has a diameter equal to or greater than a predetermined limit diameter (> 20 cm) it considered as feasible felled tree. Assuming that teak with age and the diameter of the result will be optimized and reduce damage during logging. Before logging implemented, farmers filed Cutting Permit (SIT) in the local village official, to be known by farmer groups. Harvesting executed by a trained cutting team owned by PT Dipantara. The first thing that must be done prior to cutting is to determine the direction of fall and make a safety measure so that at the time of felling timber felled not experience much damage and accidents can be minimized. Having fallen tree trunks to be done along the log distribution chain.

Based on growth projections land area in the next 5 years PT Dipantara will manage up to 1,000 ha, then the calculation of the annual allowable cut (AAC) will use projection calculations. Calculation results of the inventory has been completed in 2009 with an area of 110 ha used as the basis for the calculation of management projections up to 5 years. By use potential calculation results tree has been completed with an area of 110 ha in 2009 to the entire target farmer groups in villages in Gunung Kidul Regency, it is known that his AAC 336.76 m3. AAC where teak amounted to 82.64 m3, 125.31 m3 Mahogany, Rosewood Albasia 122.93 m3 and 5.88 m3. AAC calculation results of the inventory of 2009 is included in the AAC in 2010 From these calculations above, the PT Dipantara can project the amount of the AAC in the first year 2010-2011 ie 1867.49 m3 (up to a total area of 500 ha) and in the second year from 2012 to 2014 ie 29083.82 m3 (up to an area of 1,000 ha). For the calculation of annual allowable cut (AAC), PT Dipantara consult with TFT.

Because AAC calculation using the projected 2010-2014, then annually PT Dipantara AAC filed amendments to the TFT, based on the area that has been achieved and the results of the inventory has been completed. Thus PT Dipantara have clear control in cutting, so there is no logging in excess AAC which already set. Cutting of timber felled is numbered to know the identity of the wood. Information shown in Figure 10

Figure 10 Numbering of Timber

It can be known from the stands at the site logging of community forests. Farmers usually sell the timber if there is an urgent need and requires large amounts of funds, such as to finance the children's weddings, circumcisions, and the construction of a house or if a sudden there is a sick family member. Logging system like that in the local area is known for logging system for needs.

Timber sales made to timber traders in the village known as bakul kayu. Timber sales carried out in the form of a tree stand, so the logging is done by timber traders. It is beneficial to farmers because the buyer immediately put a price on the tree to be purchased without considering and calculating loss if there is damage in the tree, the tree or damage timber defects. For groups of farmers who are members of the target PT Dipantara, teak wood sales conducted through PT Dipantara which is then forwarded to the furniture industries in Central Java and Yogyakarta. Because the teak trees were sold through PT Dipantara,they first perform the measurement and recording of timber ownership, as part of the chain of custody of wood. The production system of community forest in the Katongan village going well due to several factors: economic factors, where people mainly community forest farmers feel the contribution of community forests which are certified compare with the income and welfare of the family, the contributions of community forests on the income of forest farmers are continuous so that it can be used if farmers need large amounts of cost. Ecological factors also directly benefit the community through the forest functions as a guard the availability of water, carbon sequestration, reforestation, erosion prevention and indirectly also can help prevent dryness in Katongan village. Another factor was the existence of local knowledge in harmony with nature so there is a desire to keep the forest in order to remain sustainable.

The limiting factor for community forest production systems is the limited ability of farmers in terms of both capital and in terms of management to increase the value of commodities produced from community forests. Fluctuate commodity prices in community forest will affect the farmer's income instability. Erratic weather factors also become a barrier to the production system due to crops that generally can be harvested three times a year, when water availability is less than or hit by a severe drought resulted in crop cultivation can only be done twice a year. moreover, lack of education resulting in limited information obtained by farmers in terms of market prices of commodities in their own lands as well as information on community forest management is good and right so that later can produce quality commodity in high value.

Control

Control mechanism prevailing in the farmer groups being fostered by PT Dipantara is in the form of reporting and evaluation of all activities of community forest management prevailing in the farmer groups respectively. Community forest farmers are obliged to report to the farming group administrators when they log the forest on land that has been inventarised. Afterward board will report this to the PT Dipantara.

Reporting was done to calculate the annual allowable cut (felling etat) which concerned because of the potential changes to enforce due to logging. Usually community forest farmers reported to the group management board in the event of a regular meeting of farmer groups. PT Dipantara also periodically prepares reports SPPL (Environmental Monitoring Document), a document management and environmental monitoring which are reported to the Office of the Environmental Impact Management Gunung Kidul Regency. Report includes several items, namely:

1. Monitoring of land before and after harvest
2. Management of rivers and springs
3. Planting and tree inventory
4. Identify areas of high conservation
5. Management of flora and fauna

6. Public consultation

Additionally every 6 months PT Dipantara required to reported the data changes in the number of members of the target group, changes in the amount of land and number of enforced changes to the Rainforest Alliance, which is a certification assessment institution of FSC. Report also given to TFT as the funder and helping agencies.

4.3 Implementation of TLVS in Gunung Kidul

In accordance with the arrangement and certified community forests located in the village of Kedung Keris divided into three hamlets namely hamlet Kedung Keris, Sendowo Kidul and Pringsurat which can be classified into three groups. The three group of the community forest are: (1) cash crops such as teak and mahogany, or other types grown only along the boundary of land owned, and land in between the trees planted crops; (2) perennials planted around the moor lands and yards without any seasonal agricultural crops such as food crops; (3) perennials planted in the limits and along the terrace, to reduce soil erosion. Among the trees planted crops and vegetables. Seeing from the composition of its kind, the forest agricultural system in the research sites can be divided into two groups:

(1) monocultures community forests or largely dominated by one type of tree crops alone. In this group tend to be no food crops and fruit trees;

(2) a mixture of community forests that have 3-5 types of perennials. This group can be found on food crops, fruits and vegetables. Most of the people in the Kedung Keris village using agroforestry systems and rarely monoculture. The fundamental reasons put forward by people is that they require food crops for the needs of everyday life. They plant cassava, maize, soybeans, and other food needs of everyday life.. In addition they also grow forage fodder for animal feed.

Figure 11 Mix of wood tree stand with fruit crop (banana)

4.3.1 Planning

Based on interviews with association management, community forest management plan in Wana Manunggal Lestari Farmer Association (KWML) is prepared for a period of 5 years. However, forest management system implemented by KWML currently not using community forest management on a vast expanse, but based on active membership, which lands are scattered by the membership in the farmers association so that there is still possiblity on membership and land area continues to grow every year then every year KWML will make a statement in the annual meeting of members (RAT) to change some reports.The changes that will be made each year, namely;

1. Data members and land area.

2. Data on the potential of wood and calculation of annual allowable cut (AAC)

Drafting of community forest management plan conducted by KWML begins with the preparation of the organization that carried out the work plan during an Annual Member Meeting (RAT). In the RAT forum information is given to the entire board and farmers who are members of the farmers association. Moreover a basic understanding of the usefulness of a management plan is also given as a guide and reference for the evaluation and monitoring of farmer groups , Furthermore, the implementation of the activities of community forest management plan preparation are forwarded to each farmer group through regular meetings between members of the farmers group.

Method includes three stages, the first of each section of the board of farmer groups to draft a plan of action for a period of stewardship that includes the type of activity, basic formulation, objectives to be achieved, financing and success job indicators. Second stages, each committee discussed the draft of each section along with other board section. Chairman, secretary and treasurer of the farmer group plays as a third job. Third stages, verifier team formulate a mechanism of monitoring and evaluation. Meeting implemented and attended regularly by farmers group members.This field dynamics issues discussed include community forests and improving the welfare of members.

4.3.2 Organizing

In 2004, the People's Forest Research Centre, University of Gajah Mada (UGM PKHR) together with ARUPA(Local NGO focused in forestry) and Shorea NGO try to initiate an alternative path to sustainable forest for Gunung Kidul region; namely to build discourse and practical design in sustainable community forest management unit, this instrument is one of the interventions to rescue community forest decline in quality and quantity which will further negatively impacted the quality of regional ecology and economy.

It is also encouraging Gunung Kidul Regency government to consider that sustainable community forest management should be done in an effective, efficient, integrated and synchronized with the development of other sectors as well as environment. Moreover based on Gunung Kidul Regency Decree No. 95 / Kpts / 2005 Gunung Kidul regency established the Working Group on Gunung Kidul Sustainable Community Forest. Working Group was composed of the parties in Gunung Kidul, which has a direct role and relevance in an effort to encourage the preservation of community forest in Gunung Kidul. The Working Group tasked to:

- Conduct an inventory and identification of the potential for sustainable community forest
- Implement socialization of sustainable forest certification program and its impact on the development of agro-ecosystems
- Facilitated productive economic activities based on sustainable community forests
- Achieve sustainable community forest management as a means of empowerment of community economy and environmental protection.
- Formulate business development of various forest products people
- Reporting the results of its implementation to the Regent of Gunung Kidul.

Finally, with the various efforts made by the Working Group for over a year, starting from the beginning of 2006, Gunung Kidul Sustainable Community Forest program is then developed into a

program "Gunung Kidul towards Sustainable Forest Certification People" with 3 Pilot Project in community forest management is
1. Girisekar Village, District Bake (Zone of Gunung Sewu)
2. Dengok Village, District Playen (Zone of Ledok Wonosari)
3. Kedungkeris Village, District Nglipar (Zone of Batur Agung)

To complete the certification requirements, the management units to be certified must have a legal entity, and felt that the only legal entities which fit and able to accommodate all the aspirations of the land owners so Wana Manunggal Lestari Farmer Association established on in August 12, 2006 by Members Meeting. Establishment of Association attended by 26 members of a community representative group of farmers of three villages that became a pilot project. In the implementation of the association establishment involved community forest management organization. Organization of community forest management is the organization set up to carry out collective management of community forests where every farmer community forest (community members) joined the People's Forest Farmers Group (KTHR) at the village level. Each KTHR joined the in the next village level every joined the Wana Manunggal Lestari Farmer Association at the district level. Furthermore, each group is divided into three units based on the agreement, namely
(1) the association as a business unit,
(2) community as a conservation unit,
(3) as a KTHR institutional unit. If viewed as a whole, then in the management of community forests there are three organizations involved, namely:

1. The People's Forest Farmers Group (KTHR), the management unit at the village level. All technical activities carried out by KTHR. The group members are the owners of community forest land in the village. KTHR charge of coordinating forest farmers in the technical action of the people in the village forest management.

2. The People's Society of Forest Management namely the preservation unit at the village level who perform control activities and sustainability aspects of production and ecological aspects.

3. Wana Manunggal Lestari Farmer Association, the business units at the district level, which are business units that carry out productive activities. Organizational relationship between farmer groups, associations and cooperatives are coordinative relationships in sustainable community forest management. Association should coordinate with the community in terms of forest management, and the subsequent association will coordinate with farmer groups in the l technical forestry term.

Farmer Association organization led by a chairman that elected in the annual meeting. Chairman assisted by two act chairman, treasurer and secretary. Where also directly oversees four sections: planning unit, production unit, the business unit and the development unit . Chairman Society originating from farmer groups concurrently as directors or supervisors of the farmers association. Land status at the site of the forest area of the Kedung Keris village is the property of community forest farmers, which is evidenced by the documents of ownership in the form of ownership title (SHM), Model D, Model E, and the Letter C, issued by local governments and National Land Agency. Not all of them have the certificate of ownership because the cost is relatively expensive to manage

certificates for land ownership. The results of observations of the documents / evidence of ownership obtained there is different name of the proof of ownership (name in certificate / Model D /, Model C / Leter C) with a list of name have by farmer groups in research area.It happens because there is a culture of name changing after marriage, the use of the name of the wife in proof of ownership while at the list of listed groups and associations use the husband's name and proof of ownership held by the original owner but now has changed its owner / bequeathed to children / grandchildren or daughter or sold to the current owner. This can be a potential confusion of ownership of these lands.

The area of community forest owned by farmers is bordered by using artificial boundaries. Artificial boundary in the form of the village / hamlet roads, stone walls / heap of stones, terraces of rock or soil, trees were planted along the circumference of the boundary area, peg / pal of cement made by the Department of Agriculture. The boundaries can be identified in the field and is recognized by every owner of adjacent land. No clear sign for each boundary that separates the community forest land area per individual, but villager still can recognize the boundaries between the blocks and the boundaries between villages.

4.3.3 Implementation

Seedling

Community forest plant seeds derived from two sources, namely natural regeneration and artificial regeneration. Natural regeneration using natural tillers (shoots), whereas artificial regeneration using seedlings planted from purchased seed. Seeds used in planting and replanting mostly derived from nature or from the seeds scraped of trees that were falling, then carried nurseries basis. Availability number of seedling was actually quite natural, but because seeds collection activities was not done routinely so that when required high amount of seeds it becomes less so farmer bring in from outside / buying seeds. This makes the quality of seeds used very diverse, natural tillers generally taken from the seeds scraped used to increase the number of crops grown instead of crops harvested and to embroider dead plants. Besides the natural regeneration also from a felled tree shoots that was used to replace the felled tree, for example in mahogany and teak trees. For this type of land Wono dominated by teak, silk tree and mahogany, seeds used were generally derived from seed sowing or buy seed from merchant at the market. For land that were dominated by Silk tree plant species, mahogany, coconut, tamarind and teak seedlings were also derived from the seeds which are sown. Unlike the type Wono and moor land, land garden / yard dominated by teak interspersed with fruit trees like mango and banana.

Preparation of Land

Land preparation activities which are farmers' efforts in preparing the site for planting. Land preparation activities were not conducted exclusively by the farmer but performed in conjunction with activities for crops (annuals), which is usually carried out before the rainy season. The duration of land preparation activities depending on the condition of each farmer and based on extensive land ownership and availability of labor.

Land preparation activities consist of land preparation activities, installation of stakes, making holes and fertilizer plants. Tillage was done by clearing the bush and loosening the soil in order to prepare

the land for crops. For forestry plants was installed marker, making holes for planting and fertilizer application. The planting hole made with a spacing varies according to the amount of crops that exist in the land. Marker installation is done by using the marker of twigs or bamboo. Planting hole is made with size 20x30x30 cm^3 and given sufficient manure. After all the activity is completed, the land was left until the rain comes. Land preparation activities for all 3 types of land is almost the same, only different cropping distances where to Wono and moor with domination of teak planting distance is more tightly, while the yard / garden with teak crop planting spacing is wider.

Planting

Activities of forestry and agricultural crops were usually conducted simultaneously, which is when the first rain came. Times takes depends on the volume of work and usually farmers grow irregularly without using a space in land. For this type of teak planting was usually not carried out specifically, but grow itself by the result of natural regeneration (seed availability and the ability to grow in the field is quite good). In general outpouring of labor was consumed for planting agricultural crops, so planting crops do at the end of the rainy season which started a little rainfall that can cause death in woody plant seedlings.

Maintenance

Maintenance is one important element in community forest management that are intended to maintain the survival of plants and improve the quality and quantity of the crop until harvest time . At wono and moor land dominated with teak and mahogany, maintenance focused to tackle weeds that can kill seedlings. The physical condition of most of land are in steep topography, so the land requires terrace building. Repair and terracing done before the rainyseason in anticipation of the arrival of higher rainfall. With the terrace of the building can reduce land degradation due to erosion, so that soil quality can be maintained.

Figure 12 Terrace maintenance

Maintenance of community forests include: repair of terraces and bunds, replanting crops, pruning and thinning. Forest maintenance done to the planted trees, which grow naturally and to shoots. Maintenance is carried out individually in each area and not homogen, this will bring the diverse qualities of wood produced.

Stitching done by using natural or scraped buy seeds during the rainy season months from December to January. Data on the number of seeds that are embroidered unrecorded / not

recorded properly, so it can not be verified. Thinning or pruning done during March after replanting activities against a tree which has many branches or after teak aged 5-8 years. Thinning / pruning aims to reduce crop shade of wood so as to provide space to grow better in the residual stand. Thinning is done to trees that have a poor physical appearance (inferior). How much and how often thinning is do is adapted to the needs of farmers.

Spacing conducted by community forest farmers not only to set a spacing but to avoid pests that are not contagious to other trees even though thinning trees, it was to arrange a spacing so as to provide better growing space for the remaining trees so that growth can be optimized. Harvesting done by KWML based on the needs of buyers due to the limited availability of the money and storage.

Associated with a trunk diameter were harvested. KWML adjust well to the specifications of a particular diameter on demand buyers . And for the piece of wood with a diameter under the terms sold to local traders or used as firewood.

Logging techniques include:

1. Create fall and notches reply
2. Direct fall toward flat
3. High stand not necessarily, which is important not flat to the ground.
4. The instrument used a handsaw (if cut for own purposes), saws engine / chainsaw (if cut by the purchaser)

Figure 13 Harvesting process

Complete data logging results only served to every hamlet existing in management area, in implementing a reporting mechanism for consistently cutting permits. Cutting permits submitted to the office of the village according to buyer demand for the maintenance of transport document SKAU (Certificate of Origin Wood) and for use by the farmers themselves. Besides reporting mechanisms logging results from the owner to the association does not run consistently, in the sense that no trees have been cut down, if local village officials do not know harvesting in the area, so that the KWML will not know it. Cutting quota in the Kedung Keris village calculated based on the formula "Von Mantel", a formula uses with the rules in the form of KWML volume to every hamlet and village. For the rate per community forest land per owner no allowable cut assigned but based on the region. Because reporting mechanism for logging results of the owner to the

association does not run consistently so that the volume of data can not be compared with the allowable cutting etat.

KWML has compiled and use of Sustainable Community Forest Management Procedures which was published in 2008. From the document contained instructions mechanism for numbering the rod to be referred to as the chain of custody mechanism trunk wood logs up to the milestone. The unique code of custody mentioned in milestone wood is like in the figure as follows:

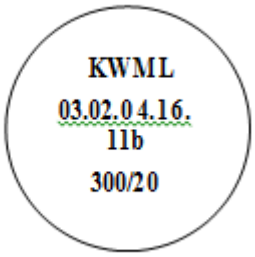

Figure 14.Log Numbering in KWML
Description :
KWML : company identity
03: Village code
02 : Hamlet code
04 : Block area code
16 : Zone code
11b : Tree number code
300 : length (cm)
20 :diameter (cm)

Field observation and documents review indicate that the origin of the wood was no longer viable but felled timber can be traced to the origin of wood / stump. Accordance with Regulation P.45 / Menhut-II / 2012 certification holders are required to make a report management and environmentalmonitoring must be reported to the local work units that deal with environmental issues. In this case the holder KWML, TLVS certification reports SPPL(Environmental Monitoring Document) were reported to the Office of Environmental Control Gunung Kidul Regency every year. SPPL is made based on 6 key points that must be complied by businesses, namely:

1. Implement public order and always maintain good relations with neighbors.
2. Maintaining the health, hygiene and esthetic condition in the business environment.
3. Responsible for the damage and / or environmental pollution caused by business and / or activity.
4. Willing to monitored the environmental impact of business and / or activities by the competent authorities.
5. Keeping the preservation of natural resources and the environment in and around the place of business and / or activity.
6. If neglected to carry out a statement on the number 1 to number 5 above, it is willing to take responsibility in accordance with the legislation in force.

Based on interviews with the management of farmers' groups in Kedung Keris. In addition to following the rules of the association members of farmers who are members of the association also has internal rules that must be adhered to farmer groups members. Rules is formed by mutual agreement through a series of meetings between members of farmer groups initiated by local community leaders who recognize the importance of group primarily associated with forest management.

Rules of farmer groups applied as a sustainable community forest management. Internal rules applied to farmer groups in Kedung Keris, among others:

1. Members of the group are people Kedung Keris
2. Membership is voluntary and without coercion
3. All members must abide by rules and active in
4. Members will carry out the conservation of natural resources and do not damage the environment
5. Members will harvest the wood if the wood is old and worth. For mahogany usually when it is 15 years old and 20 years old teak trees.
6. When cutting trees then be obliged to replace it with a new plant with a number of plants as much as 5 times the amount harvested

4.4 Impacts of FSC and TLVS in Gunung Kidul

4.4.1 Economic impact

Timber prices in both the management unit currently experiencing an increase. This price increase that occurred happened because price in the market of conventional wood lumber was rising. Based on the results of a study of 112 respondents in two certified community forest management units show that 92.59% of the farmers TLVS Kedung Keris, stating that the price of wood being increased in accordance with the increase in the conventional wood markets.

Community forest farmers in both the management unit felt the price increase was impacting on their income. However, the rise in prices that affect farmers' income was not the result of certification. This evidenced by the absence of buyers who appreciate timber in the market price (premium price) . While 67.24% of respondents stated that farmers Katongan FSC certification of influence and provide premium price it because PT Dipantara willing to pay more price for certified teak wood, based on interviews with the PT Dipantara they were willing to pay 15-35% more expensive than the local wood merchant since has had buyers from France, Canada, USA and the furniture industry in Yogyakarta and Central Java which are focusing on exports whereas for KWML they reported experiencing difficulties in get buyers for TLVS certified wood.

Table 10 Wood/Timber price of PT Dipantara

Class	*Diameter (Cm)*	*Length*	*Quality*	Price per m3 (In Indonesian Rupiah)		
				Local Market Price	Dipantara	Diff(%)
A3	30 - 39	1,00 to 1,9	T	3,000,000	3,450,000	15
A2	22 - 28	1,00 to 1,9	T	1,900,000	2,450,000	29
A1	13 - 19	1,00 to 1,9	T	1,000,000	1,350,000	35

The second criterion studied was the penetration into new markets. Aspect of penetration into new markets seen on the presence or absence of accretion buyer after certification. In the two management units of the FSC Katongan and TLVS Kedung Keris buyers not significantyl increase as shown by a percentage of 46.55% and 66.66%. Added buyers do exist in both the management unit although the percentages vary. But accretion buyer was actually happening because the increasing number of timber merchants. The number of timber traders rise because more and more potential timber market so that people in Gunung Kidul Regency which has attracted capital to go into timber trade business. The third criterion of the economic impact of the visits was the existence in the existing market. Based on the results of the study, of 112 respondents, 86.20% Katongan FSC forest farmers, while 92.59% Kedung Keris TLVS forest farmers declared a buyer who had bought the wood to them was still an old buyers. The data found in this field becomes a justification that the existence of timber trade between forest farmers with buyers still exist, and the existence of forest farmers in the timber market before the certification system come is still good. The existence of

farmers in the existing market was not caused by a certification but caused by the timber trade potential that timber traders still maintain forest farmers who sell timber to the trader.

This evidenced by the response of forest farmers stating that if offered to buy the wood, timber traders will always be willing to buy their wood. But the willingness of traders to buy was not matched by the willingness of traders to appreciate the wood at a price above the market price (premium price). Where as in the second timber is a certified timber management unit as included in the certified management area and should get a different price than the usual wood. But until now the market segmentation between regular wood and certification wood is difficult to form.
The criteria were examined to see the economic impact was from the aspect of community forest farmers' bargaining position. Aspects of this community forest bargaining position associated with information asymmetry that occurs. Based on the results of a study of 112 respondents note that 80.00% of FSC Katongan respondents and 96.68% of TLVS Kedung Keris respondents, stating information regarding the increase or decrease in lumber prices have only gained from timber merchants. In fact, based on interviews with farmers, forest farmer was aware that the information given was not entirely accurate because there are pricing games by the timber merchant. Determinant of price increases at the farm level for timber was also determined by information from the merchant. According to 100,00% of the farmers TLVS Kedung Keris, and 63.79% FSC Katongan informing farmers and who determine the price of a type of wood goes up or down was the merchant.

This supports the fact that the merchant is the only carrier of information regarding the prices of wood in the timber market. Timber selling prices prevailing in the society is the price agreed upon by farmers and merchant with timber prices in the market as a benchmark. Conventional marketing process which is still going on is dominated by a merchant. This happens because of the lack of cooperation networks between farmers and wood collectors directly and farmer's lack of capital to cut wood themselves and distribute directly to wood collectors. As a result, community forest farmer's bargaining position is less strong. Moreover, farmer's groups which already formed can not strengthen the bargaining position of farmers due to lack of capital and the market has not been strong for special certification.

The next criterion was seen from the aspect of economic impact was an increase in revenue. Based on the questionnaire to respondents it note that the income earned on the sale of timber forest farmers in both management unit rises with the percentage of 81.03% for farmers Katongan FSC, 94.44% for farmers TLVS Kedung Keris.Revenue rising was because of their allegedly due to rising price of wood, not the impact of certification. Criteria related to economic impact was getting better also investigated whether or not the marketing aspects of timber based on the survey results revealed that there was no significant change in the distribution chain lumberyard before and after certification. In the FSC Katongan farmer groups and TLVS Kedung Keris there were no change except for the marketing aspect of teak on FSC group Katongan where PT Dipantara willing to accommodate teak produced by FSC Katongan farmer groups but not willing to accommodate the others type of wood. Change in distribution chain that occurs in groups FSC farmer Katongan occur at the beginning of the distribution chain consisting of a seller-collectors-industry and then transformed into a seller-buyer-Dipantara certification. But this only true for teak wood only.

The next criterion of economic impact was the cost aspect of certification. Based on survey results revealed that farmers in both the forest management unit answered the majority of the cost of certification was quite expensive with TLVS Kedung Keris percentage of 85.18% and FSC Katongan as much as 87.93%. And they were not willing to comply with the certification at their own expense this because expensive certification costs make the farmer in community forests are not willing to comply with the certification at their own expense, but if the certification time limit has expired, forest farmers are still willing to do a re-certification .

Based on interviews it costs around 13,000 US $ to obtain FSC certification and Rp 40,000,000, - to obtain a TLVS certificate it also does not include the cost of an annual inspection, which reached 7,000 US $ for FSC and Rp 25,000,000 for TLVS where FSC certification is valid for 5 year-old was TLVS certificate is valid for 3 years.For PT Dipantara they obtain funding for its certification from TFT so for the time they had no difficulty in funding the certification while in KWML case they got help for TLVS certification from the MFP Programme , a joint project between the Ministry of Forestry with UK-Aid but unfortunately financing provided does not cover the cost of inspection, so this was considered burden some party in KWML to maintain TLVS certification they gets so that in October 2012 KWML got freezing on TLVS certification for 3 months because of financial problems viewing this.

If the certification is deemed necessary and important to be applied in community forests, the certification cost funding sources need to be considered by all parties involved in order not weigh on community forest farmers. Certification funding solutions can be based on three alternatives ie dues, subsidies, and build partnership. In the first scheme which dues, members of community forest management unit can repay the cost of certification through community forest management unit. But to run this contribution scheme needed farmers' awareness of the importance of certification and required institutional community forest management unit credible. (Simula et al, 2005). In the second scheme the subsidy, the government can provide subsidies through reward and punishment system where the management unit which has a good performance will be subsidized more and vice versa. The third aid scheme can be applied is the development of partnership between community forest management unit by industry which exports to countries that require certification. In the scheme of partnership with the wood industry, the timber industry partnerships imposed an obligation to provide financial assistance for farmers forest certification and timber certification accommodate community forest farmers.

Besides the three schemes offered, can also apply a combination of the three schemes, so the government should not subsidize 100%. (Sedjo and Stephen, 2002) In addition to economic impacts based on indicators identified earlier, found another economic impact of the application of forest certification. Once certification is granted to the management unit, TLVS Kedung Keris more and more academician who do research and among government and non-governmental visits comparative study. Whenever there is a visit, guests who come usually donated funds to fill the treasury group. The help came from individuals and institutions are channeled through the group and are categorized as indirect economic impacts that are positive for the community forest management unit.

Forestry and Plantation services Gunung Kidul Regency give teak seedlings aid and Gunung Kidul Regent give carpentry tools and the latest Japanese embassy provide assistance to KWML with one unit of sawmill. The economic impact beyond the indicators found was the creation of the sawmill workshop as a means for management units in developing raw material processing business. So as to create other sources of funding for the association but to rely on the sale of wood. Wahyudi (2011) claimed that timber certification will gain added value other than the wood itself.

The next criterion seen from the economic impact was an aspect of the phenomenon of cutting needed in the management of community forests. Based on the results of a study of 112 respondents note that 86.20% of respondents FSC Katongan, and 93.10% of respondents TLVS Kedung Keris, stating that they apply the principle means that farmers feel the need to cut tree in forests contribute to the income of farmers of forest that can be used if the farmer costs in large quantities and in time. They do not have to sell to the PT Dipantara or KWML but usually through local merchant or buyers who come to the village. Some of respondents stated do need to cut the tree for pay urgent needs such as children's education, marriage, illness treatment or home renovation.

4.4.2 Social impact

The first indicator of social impact was the aspect of participation and community awareness. Aspects of participation and community awareness of the benefits of forest management seen from where the farmer gets information about certification and how often farmers attended regular meetings of the management unit that is sometimes addressed the issue of forest management by bringing in. On the second management unit, found that 96.29% of the farmers in TLVS Kedung Keris obtain certification information from the farmer groups that got incorporated in KWML, 93.10% of the Katongan FSC farmers claimed to have information certification of the PT Dipantara by visiting farmer groups one by one and offers the following certification concept useful to them. 87.03% farmers of TLVS Kedung Keris often attend regular meetings of farmer groups. While 74.13% of farmers FSC admitted Katongan farmer frequently participate in group meetings that discussed forest management. Meeting of farmer groups important to consolidate issues that arise regarding the management of community forests.

Second indicator of social impact was the awareness of farmers in the management of community forests. This aspect was investigated through adherence to norms and activeness of farmers Norm behavior that had been prevailing in the society adopted to make local norm and forest governance. So there are three rules that apply in the community, the local norms, and forest governance. Prior to the form of written rules, as now, people already have norms that have been run for many years. Norms adopted into the written rules are the norms regarding the obligation of planting each year; replanting after felling; arrangements regarding livestock grazing so as not to damage the stand; the prohibition of making seeds, stands and shoots out his land; and others. Adopted norms that are then passed into the written rules and the rules of the game were formulated and agreed by consensus.

Figure 15 Meeting of farmer groups

A total of 74.13% of the Katongan FSC group respondents admitted as well to follow the regulations set by PT Dipantara.While 85.18% of Kedung Keris TLVS group claimed adherence to the farmer association rules and groups. In management unit of KWML there was no special committee that oversees whether any member who violates the rules and supervision and this supported by all members. Even if there were offenders in KWML, everything will be implemented by tolerance and there was never any sanctions imposed. This shows no specifically rule that has been made and the deterrent effect for offenders do not exist. Conditions enforcement in KWML same as the conditions in the farmer groups guided by PT Dipantara where supervision carried out between members while 88.88% of the TLVS Kedung Keris farmers group has always claimed to be involved in activities and 82.75% of FSC Katongan respondents aware actively involved in community forest management.

The third indicator of social impact was clarifying aspects of land property rights and solution to the conflict. Based on the results of all members of community forest management unit certified (100%) already have clear ownership status of their land by holding official papers to legalize their land tenure. All respondents in the two management units state that their land ownership rights were clear prior to certification and already have a letter of formal land ownership prior to certification. This happens because the role of the government to encourage people to certify the ownership of land through mass land certification program. The clarity of the status of this land property rights in addition to helping ease the certification process also helps minimize conflict so in two management units studied land conflict has never existed at all.

The fourth indicator was the increase in the capacity of community forest farmers. Aspects of capacity building community forest farmers through increasing examined whether or not the knowledge of community forest owned by farmers after certification and whether any training provided to develop farmers' capacity to manage community forests 87.93% of FSC Katongan respondents claimed to have additional knowledge in community forest after certification process. While only 50% of TLVS Kedung Keris farmers who claimed to have additional knowledge post certificatioin. In case of training provided 84.48% of Katongan FSC farmers respondents claimed to have compared with 64.81% TLVS Kedung Keris farmers who receive training .This was due to the limited funds that are owned by KWML so that not all members could be given training on the management of community forests.

4.4.3. Environmental impact

Based on criteria of hydrological function of community forests, 96.29% of respondents TLVS Kedung Keris and 100.00% of FSC Katongan respondents felt the increasing of the availability of water and the environment becomes better than it used to be when Gunung Kidul famous as barren and arid regions. Phenomena encountered in this field was supported by evidence of existing trees along the road in the village and springs around the residential area .Data in table 11 magnifies this argument.River always flow in a whole year from 2 till 800 (m3/second).In this case community forests make their most significant contribution to the hydrological characteristics of watershed ecosystems. This achieved through minimization of soil erosion on site, reduction of sediment in water bodies (wetlands, ponds, lakes, streams, rivers) and trapping or filtering of other water pollutants in the forest litter so groundwater recharge and water yield (IUFRO,2007).

Table 11 Water discharge in Gunung Kidul River in 2014

No	River In Gunung Kidul	Length (km)	Water discharge (m3/second) Max	Min
1	Balong	1.95	140	40
2	Banyumoto	1.92	180	100
3	Bendo	10.23	25	12
4	Beton	1.12	215	55
5	Bonjero	2.66	50	21
6	Duren	2.59	25	7
7	Durmadi	0.69	10	2
8	Gadel	1.75	60	20
9	Gede	12	100	20
10	Gedongan	2.25	45	10
11	Geger	1.57	82	16
12	Gempur	2.11	15	4
13	Jaran	1.52	60	18
14	Jati Kuning	1.13	30	7
15	Jetis	0.72	33	10
16	Karang	10.21	44	12
17	Katongan	1.88	70	16
18	Kedung	6.09	110	36
19	Kedungdowo	9.58	28	9
20	Kedunggedang	3.78	31	10
21	Kembang	0.48	25	7
22	Ngalang	14.43	800	60
23	Ngandong	4.93	25	5
24	Ngasem	3.34	140	35
25	Ngresep	3.54	60	15
26	Nongko	3.45	48	13
27	Oyo	71.6	2.3	60

28	Pancuran	5.78	125	45
29	Pengkol	3.29	45	15
30	Pucung	9.15	110	35
31	Pule	2.07	70	16
32	Putat	2.59	10	3
33	Roso	3.11	75	60
34	Senggotan	1.32	29	7
35	Teken	0.74	45	12
36	Trosari	0.48	20	10
37	Yuyu	3.29	20	10

In terms of biodiversity, respondents in both areas of community forest management unit stated that the flora and fauna there are more numerous and diverse. This is shown with a percentage of 92.59% for TLVS Kedung Keris and 91.37% for FSC Katongan. Significant increase in biodiversity shown by an increase in the number of fauna and flora.

Until now, according to the farmers, the number of birds and plant varieties have increased but the flora and fauna that was not an endangered or protected species, but only local species that appear as agroforestry in Gunung Kidul Regency. This because from the two villages that are included in the scope of certification it can be seen that community forest areas not associated with the natural forest ecosystems. In the Keris Kedung community forest areas are bordering with the state forest, but the state forest is also not a natural forest since eucalyptus plants (Melaleuca leucadendron) has been planted.

On the basis of this information it can be concluded that the state of the region in both village forest management unit is fragmented because it does not have connectivity with a natural forest ecosystems. With fragmented degree it means that the community forest has a significant hitch for the movement, deployment, and dispersal of genetic resources of a sub-populations to sub populations so that the species found was only species commonly can be found in the village in general (Awang et al, 2007) Recycle logging applied by the community before and after the certification has not changed at all in the second management unit TLVS Kedung Keris and FSC Katongan Respondents in both the management unit still fell trees in time there is an urgent need, which means that they still consider wood as the savings that can be cashed at any time. Pattern of sustainable forest management in the category of replanting stands after the cut has been made by the people for many years demonstrated by the high percentage of replanting after felling in the management unit.

Survey results shows that there was no change in this aspect. Both before and after the certification of the forest were people still replant the stand after harvesting. The high percentage of replanting after felling on both management unit is shown with a percentage of 72.22% TLVS Kedung Keris of respondents and 82.75% of FSC Katongan respondents. This happens because replanting after harvesting is the prevailing norm in society due to the instigation of government and accommodated with ratification of rules by management unit on condition that if the land is still possible to be replanted.

Besides, replanting was being conducted because the forest farmers benefit greatly from the development of community forests, especially from the environmental point of view.75.92% of TLVS Kedung Keris respondents replant with the same type and in the same land . FSC Katongan respondents replant same types and within the same area as much as 62.06%. Less than respondents in Kedung Keris this was because they receive assistance from PT Dipantara for teak seedlings so that they can replace their mahogany with teak plants.

CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS

This chapter shows the concluding remarks deriving from findings in the previous chapter to address the main research question and then finally gives some recommendations for further study based on some limitations and some issues that are not covered by this research. The main research question of this research is :

- How was the implementation of community forest management by community forest management unit certified by the FSC and community forests certified by the TLVS.
- What was the impacts of forest certification within FSC and TLVS certification schemes in term of economic, social and environmental dimensions.
- What recommendations can be derived for promoting community forest management certification in the future.

5.1 Conclusions

Based on the results of comparative implementation TLVS certification and FSC in the district of Nglipar Gunung Kidul Regency obtained some conclusions, namely:

1. In implementation of forest certification, factors that influence the participation of farmers and forest management unit to follow TLVS and FSC certification is based on the factor of awareness of protecting the environment, in hopes of getting a premium price, and the assistance of the institution. Although farmers in the management units have an awareness of protecting the environment but they are not willing to do a certification at their own expense. Dominance premium price factors correlated with the fundamental aim of certification as a market instrument to appreciate the effort to preserve the environment through incentive premium price premium price but in reality it is difficult to obtain.

2. In term of economic aspect. The cost of preparation, assessment, and surveillance to be paid if the certifying potentially reduce the profitability of the concession of the people while there is no price premium. Certification costs should pay Rp 40 million every three years for TLVS and 13,000 US $ for FSC certification once every 5 years in those years in which the farmers do not get results because timber harvesting is done at the end of the cycle, namely in the year to 8 to the 20th year. On the other hand, the certification provides economic benefits that more and more help for example in the form of financial assistance and crop seeds since the visits of government and non-governmental agencies

3. Look from the aspect of social impact, although there has been no institutional strengthening but the certification successfully established institutional potential to be developed further, deliver increased processing capacity of forest products, development of partnerships between farmers and other institutions, and improving farmer knowledge about community forests

4. From environmental view, forest certification either FSC or TLVS have give positive impact it can be seen from water availability in whole year and more biodiversity of flora and fauna found in Gunung Kidul

5.2 Recommendations

1. If either TLVS forest certification and FSC deemed necessary to put in place, should be considered where farmers will pay the cost of certification. Several alternative funding schemes can be applied which are subsidizing the cost of certification, establishing partnerships with companies that export-oriented forestry sector, and governmental organizations in the form of dues collected by the management unit as well as a combination of the threes.

2. Indonesian government should put some regulation that can increase the price of wood/timber derived from legal and certified community forest so that more forest farmers will atract to follow forest certification program.

3. There needs to be further research on the effectiveness of certification as a market instrument and why the market segmentation and specialty markets for certified wood is difficult to form, and research into the economic cycle in accordance with the current conditions and the most profitable for farmers and the environment.

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APPENDIX 1

¬Questionnaireand Interview

I am University of Padjadjaran and University of Twente student. Right now, I am conducting a study about "forest certification" as my research master thesis. The aim of this study are to identify the condition for FSC and TLVS schemes implementation in view of environmental management by community in Gunung Kidul regency. I would like to ask you a few specific question and your information will be kept confidential, if it would be needed to quote you, we will ask for your permission. To respond this questionnaire will take you about 60 minutes and I need to record our conversation. Thank you for your time.

Interview Questions

Planning

How is the initial process of community forest program was introduced to farmer group.?

How understanding and acceptance of the program by the farmer?

Any preparation needed and how long will it take?

How can the formulation of objectives of community forest management, as well as the actors involved in it?

How is the preparation of technical design and plan management activities and who was involved?

Is there cooperation with other parties and how the mechanism and its contents?.

Organizing

How is the early formation of farmer groups?

How does the organizational structure of farmer groups and how the division of tasks and responsibilities, as well as thedivision of work?

How coordination mechanisms work?

Is there training ever implemented and followed?

How is the process of organizing regular meetings?

What is the mechanism of conflict resolution?

Implementation

How structuring community forests?

How to determine the type of plants, plant composition, cropping (planting system), and the type of plants under its standing?

How is the maintenance of community forests?

How does harvesting includes determining the location of cutting, standing inventory method, the determination of the type and diameter of trees to be felled, harvesting, and how to transporting timber?

How is marketing of forest products and timber pricing mechanism?

What about the non-timber forest products?

Control

How do evaluation mechanism?

How the reporting system in the farmer groups?

How internal control mechanism?

Economic Aspects Of Community Forest Certification

How forest certification increase farmers' income?

What about the cost of forest certification?

How forest certification develop the local economy?

Social Aspects Of Community Forest Certification

How to increase the sense of solidarity among certified farmer groups?

How does public acceptance of certification?

How to deal with conflict?

How to increase farmers' knowledge of certification?

Ecological Aspects Of Community Forest Certification

What ecological impacts arising?

Can certification help the environment?

Quetionairre

Gender: (M?F) *

Age: ..... years

Last education level : .....

Number of family members: ..... people

..... Person (child)

Mainiob: .....

Side job : .....

Land ownership part of community forest: ..... (Ha / m2) *

The number of trees owned: (type and number)

a. Teak .....

b. Acacia .....

c. Mahogany .....

d. Other types of wood .....

Agricultural businesses performed:.....

Farm business is done:.....

Trading businesses performed:

Revenues from timber in public forests:

a. Teak: .. .. (Month / year) *

b. Akasia: .. .. (Month / year) *

c. Mahogany:..... (Month / year) *

d. Other types of wood:..... (Month / year) *

(Other wood type mentioned) .....

Timber sold in the form of: (wood / tree intact / sortimen * /

The amount of timber sold:

in.

a.Teak: ..... (trees / m3 / rod) *

b. Akasia: ..... (trees / m3 / rod) *

c. Mahogany: ..... (trees / m3 / rod) *

d. Other types of wood (call type and number):

.....

.... (Trees / m3 / rod) *

Agricultural plants / crops from community forests:

a. Corn:..... (Month / year) *

b. Cassava:.. ..... (Month / year) *

c. Peanuts:.. ..... (Month / year) *

d. Fruits:.. ..... (Month / year) *

e. Agricultural plants / crops, if applicable: (call type and number)

..... / month or / Year) *

Agricultural products / crops sold (per kg / persack) * .....

....

Total crop / crops are sold per year:

a.Corn: .... (Kg / sack / ton) *

b. Cassava..... ..... (Kg / sack / ton) *

c. Peanuts..... ..... (Kg / sack / ton) *

d.Fruits..... ..... (Kg / sack / ton) *

e. Plant another type (called type and number):

.....

..... (Kg / sack / ton) *

Livestock: (number of animals owned)

a. Cows: .....

b. Goats: .....

c. Buffalo: .....

d. Chicken: .....

Income from the agriculture activity: Rp ..... (month / year) *

Number of animals sold annually:

a. Cows: .....

b. Goats: .....

c. Buffalo: .....

d. Chicken: .....

Trading in (buying and selling clothing, land, motorcycles, food processing of agricultural plants / crops, crafts or other business, please specify):

type of business : ..... revenue: ....

.... (month / year) Other (wages / salaries as civil / private / labor, etc.) *:

.....(per month)

Source fulfillment: ....

a. sell timber

b. agricultural crops

c. crops

d. trade

e. salary,

f. and others * specify .....

According to Mr. / Ms, whether the existence of forest certification have provided benefits to meet the needs of families of Mr / Ms?

Yes / No), the reason .....

.....

Information :

- Eliminate unnecessary

ECONOMIC ASPECTS OF FOREST CERTIFICATION IN THE COMMUNITY

1. How does the price of wood/timber after certification?

a.Raise, how mentioned .....

b.Normal, the appropriate market price of timber is arrange by wood merchant

c.Drop

d.Not sale yet

e.Dont know

2. Do buyers appreciate the wood with a much higher price (premium price)?

a. Yes

b. No

c. Not to Sell / No selling

d. Do not know

3. Is there an increase in sales revenue of wood/timber after certification?

a. Yes

b. No

c. Normal

d. Not to Sell / Not Selling

e. Do not know

4. Is there would be a new buyer after certification?

a. Yes, how many ... .

b. No

c. Normal

d. Not to Sell / Not Selling

e. Do not know

5. Is the old buyer still buy wood or not?

a. Yes

b. No

c. Not to Sell /Not Selling

d. Do not know

6. Are certifications improving market access to timber / forest products?

a. Yes, why? : .....

b. No problem ? : .....

7.After follow forest certification, whether you had difficulty in marketing wood / forest products?

a. No, because: ....

b. Yes, because : ....

8.Is current selling price is higher than your timber if sold in the local buyer?

a.Yes

b.No

9.What do you think about the cost to get certified?

a. Too expensive

b. Cheap

c. Do not know

10 Do you still sell timber beyond a predetermined group?

a. Yes

b. No

If yes where?

.....

11.Are you still need to apply the principle of cutting (cutting trees while having a large and sudden needs)?

a. Yes

b. No

If yes, what needs?

.....

SOCIAL ASPECTS OF FOREST CERTIFICATION OF THE PEOPLE

12. Where or from whom you know information about forest certification?

a. Board of farmer groups

b. Companion

c.The village

d. Other sources, specify: ....

13. Do you follow a regular meeting of farmer groups in order to manage community forests?

a.Yes

b. No

If yes, how many times in one month ....

14. Are you involved in any community forest management activities?

a.Yes

b. No

15.Is no binding rules as the member of the certified farmer group?

a.Yes

b. No

16. Have there been any conflict in the management of community forest lands?

a.Yes

b.no

c. no conflict

17. Is there a solution to land conflicts in certification?

a.Yes

b. Not

c. no conflict

18.Is there additional knowledge of community forests, potency, and its benefits after certification?

a.Yes

b.No

c.Don't know

19. Do you get training to improve the capabilities andunderstanding in order to manage community forest after certification?

a.Yes

b. No

ECOLOGICAL ASPECTS OF FOREST CERTIFICATION IN THE COMMUNITY

20..Is there are any different circumstances of springs condition surrounding community forests that are certified?

a.Better (adequate water availability)

b.Worst (less water availability)

c. no difference

21. Is there a difference in the environment surrounding community forest certified?

a.Cooler

b More arid

c No difference

22.is there are differences in the number of animals and plants around the community forest certification?

a.Getting more

b.Getting less

c. no difference

23..Is logging is done in a certain time period?

a.Yes

b.No

c.Don't Know

24.Are locations where trees have been felled is replanted?

a.Yes

b.No

c.Don't Know

25..Is re-planting done?

a. Yes with the same type

b.Yes with a different kind

c.No

d.Don't know