REPORT

Ministry of Forestry of Indonesia
International Tropical Timber Organization
RED-PD 007/09 Rev. 2 (F)

Enhancing Forest Carbon Stock to Reduce Emission from Deforestation and Degradation through Sustainable Forest Management (SFM) Initiatives in Indonesia

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Project Technical Report

RED-PD 007/09 Rev. 2 (F)

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to Reduce Emission from Deforestation and Degradation
through Sustainable Forest Management (SFM) Initiatives
in Indonesia

Host Government: Indonesia

Executing Agency:
Directorate of Production Forest Use and Business
Directorate-General of Forestry Business Management
Ministry of Forestry

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Project Coordinator: Usman, MS

FOREWORD

The issue of global climate change has become a central issue and concern of the world by all people at local, regional, national and international. Global warming and climate change arising due to the greenhouse effect / Greenhouse Gas (GHG) emissions resulting from the effects of development activities in various business sectors, including land use, changes in the function and forest allocation, forest and land fires, a decrease quality of forests from uncontrolled utilization, as well as the burning of fossil energy.

Indonesia has declared its commitment to reduce Greenhouse Gas (GHG) up to 26% by 2020 from Business as Usual (BAU) with its own funds and 41% of the BAU with international assistance. Forestry sub-sectors included in the international institutions Land Use, Land Use Change, and Forest (LULUCF) will contribute to the reduction of carbon emissions by 14%. Therefore, developed countries should assist countries that have a large enough forest to maintain and manage them sustainably. This is urgently needed because one of the functions of forests is to absorb and store carbon, thus keeping down carbon emissions. In this regard, Indonesia has proposed scheme in contributing to the GHG emissions reductions through of REDD / REDD+ (Reducing Emissions from Degradation and Deforestation Plus). REDD activities include reduction of GHG emissions from (1) deforestation on forest conversions and (2) degradation through the practice of SMF, whereas the meaning of "plus" here is in addition to emission reduction efforts, especially in (3) conservation, (4) reforestation and restoration ecosystems. Besides, Indonesia also can implement a Clean Development Mechanism (CDM) through Aforestation / Reforestation (A / R CDM) and Voluntary Carbon Market (VCM) which is a scheme for sequestration and storage (RAP / PAN) of carbon.

During its development, the two schemes are very slow even stagnant due to both internal and external factors. For that reason, the International Tropical Timber Organization (ITTO) through the ITTO project PD 007/09 Rev.2 (F) concerned in assessing provisions/regulations related to SMF, forest-based carbon (FBC), carbon stock (CS) , uptake of $C0_2$ ($C0_2$ sequestration), and environment-friendly products (green products). Study in this project conducted in order to realize the initiative Indonesia in improving forest carbon stocks to reduce emissions from deforestation and degradation through sustainable forest management. The results of the study describe in this report.

Jakarta, January 2012

Study Team

EXECUTIVE SUMMARY

The general objective of this review is to encourage sustainable forest management in Indonesia, as an important option for mitigation of forest-based climate change in order to reduce emissions from tropical forests. Indonesia has taken some policies noted by regulation about two objects, e.g. carbon sequestration/sink and Reducing Emission from Deforestation and Degradation Plus (REDD+). Somehow, still many of regulations related with the two objects have not been made by the regulator for supporting the objects. Gap analysis has been taken to find out miss connecting with the real means of enhancing carbon stock to reduce emission from deforestation and forest degradation through sustainable forest management initiatives in Indonesia.

There are nine minimum factors that being the order of analytical frameworks and mechanisms for REDD+ infrastructure through sustainable forest management at Indonesia. Furthermore, the centre of this study also on REDD+ which including the study of (1) the provisions and policies, (2) Reference emission levels, strategy, and MRV (measure, report, and verify), (3) market and funding, (4) distribution (benefit sharing), and (5) safeguards. Through mitigation and adaptation, net balanced sinks will be obtained. The net balance sinks are derived from reduced emissions and carbon storage, so the resilience of ecosystem to climate change will be acquired

REDD+ scheme is currently in the stage of introduction and demonstration activity at several locations and has not received the appropriate methodology to be implemented in the forest management unit at least until 2012. REDD+ scheme, at the annual advanced meeting COP-16 in Cancun, Mexico has recommended that (a) REDD+ activities should be linked with the objective to slow down and prevent deforestation, improve forest cover, and return the carbon lost due to human activities, and (b) with the support of developed countries, provide early clues related to the stage of readiness (readiness phase) by making a to do list of activities for developing countries that will implement of REDD+. The results of COP-16 is the starting point of Indonesia to believe in continuing such scheme for of REDD+ with a various activities that will be listed and reported to the international.

The concept of REDD+ in Indonesia is most likely similar with the sustainable forest management that the overall activity component of (1) reduction in carbon emissions from deforestation (the conversion), (2) Reduce emissions from degradation forest (the practice of sustainable forest management), (3) detention emissions/carbon stocks (forest conservation), and (4) an increase in carbon stocks (in reforestation activities, and ecosystem restoration). Eventually, various activities are intended to reduce carbon emissions and increase carbon uptake in order to achieve the balance of net carbon sinks (net sink / balance). In relation to the implementation of all activities conducted in various forest management units in order to reduce carbon emissions, Indonesia has issued several legal products, government regulations and other regulations.

REDD plus activities are an important part of an effort to decrease Greenhouse Gas emissions (GHG), both nationally and globally. For Indonesia, which has the third largest forest area of the world, a global support to REDD Plus activities has prompted Indonesia to reduce its GHG emissions consistently. Indonesia will reduce carbon emissions up to 41% by 2020 with international aid. However, if there will be no international aid, Indonesia will still decreasing the carbon emissions until it reaches 26% by 2020, of which approximately 14% of it (or 54% from the emission reduction targets without international assistance) expected to conduct through forestry sub-sector.

To support implementation of carbon sequestration and REDD/REDD+ activities, Ministry of Forestry has issued 3 (three) regulations that directly related to increase carbon storage and sequestration (Seq/Stor Carbon) and REDD+, namely: (1) The Minister of Forestry Regulation No P.36/Menhut-II/2009 regarding License Procedures of Carbon Sequestration and / or Carbon Storage's Business in Forest Production and Protection Forests; (2) The Minister of Forestry Regulation No P.68/Menhut-II/2008 regarding Implementation of Demonstration Activities for Reducing Carbon Emissions from Deforestation and Forest Degradation (DA-REDD /REDD+) and; (3) The Minister of Forestry Regulation No P.30/Menhut-II/2009 regarding Procedures of Reducing Emissions from Deforestation and Forest Degradation (REDD). By the context, these regulation sets the permissions to carry out activities of Carbon Sequestration and / or Carbon Storage (Carbon Seq/Stor), DA-REDD and REDD implementations, where in principle the activities oriented to support SFM with the aim to reduce carbon emissions and increase carbon stocks (carbon enhancement) that are environmental services from the sustainable management of forests. Economic characteristics of environmental services as a non-excludable services require incentives for the development. Therefore, complex procedures and charges both formal and informal need to be minimized/eliminated. In addition, the benefits of Carbon Sequence/Storage and REDD implementation should consider the benefits of cutting the forest (opportunity cost).

The parties can develop Carbon Sequence/Storage and REDD+ activities consist of (1) business entities like State Own Enterprises, Local Government Own Enterprises, and Private; (2) community based entities such as customaries forest and private forest; (3) government based entities like Forest Management Unit (FMU); and (4) International organizations /foundations/private donors. While the location of the implementation of activities covering the areas of the state forests, customaries (communal right) forests and smallholder private forests. The implementation involves various parties, both developers, communities, governments and as well as international and national donors. This would require organizations to manage, supervise, manage its benefits and distribute it. Involving the government as a guarantor of rights seems to be needed, but government involvement should be equipped with rules that can minimize transaction costs.

To support the successful implementation seems needed some requirements, namely: (1) assurance of continuity / sustainability of forest resources both to reduce carbon emissions and enhance carbon sequestration and storage; (2) requires a serious effort to reduce the risk of state forest land easily to become open access resources; (3) requires big efforts to prevent leakage of both domestic / local in implementation around the site as well as leakage to other State due to the emergence of economic opportunities arising from the impact of reduced timber production; (4) Governments have a strong role in the implementation of Seq/Stor Carbon and REDD+; and (5) organization is required to run the agreement, the guarantor of rights, settlement of disputes among stakeholders involved and conducting the measurement, reporting and verification (MRV).

Several regulations and other means that hamper the successful the REDD+ scheme e.g. the local regulation of revised region spatial planning (province and/or district/town), Ministry Regulation of forest restoration ecosystem still similar to the sequential activity with other licences of forest concession, lack of establishing land tenure although the agrarian's law was existing, un-synchronized execution between Government and Local Government especially in taking the regulation associated with financing mechanism (retributions schemes) of the mitigation schemes, and implementation of the schemes with no good governance in all level. The other regulations are organization of forest management unit has not been developed yet in several provinces in Indonesia and regulation of mining in the forest area without compromise with the previous licence holder The undeveloped regulation of encroachment, illegal mining, illegal crop estate, illegal logging, etc could be the obstacle in

enhancing and maintaining carbon stock through sustainable forest management. If Indonesia wants to succeed in some executions of mitigation schemes and enhancing and maintaining carbon stock, several of these regulations should be developed immediately and law enforcement should be done consistently.

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1 INTRODUCTION

1.1. Background

The issue of global climate change has become a central issue and concern of the world by all people at local, regional, national and international. Global warming and climate change arising due to the greenhouse effect / Greenhouse Gas (GHG) emissions resulting from the effects of development activities in various business sectors, including land use, changes in the function and forest allocation, forest and land fires, a decrease quality of forests from uncontrolled utilization, as well as the burning of fossil energy. These conditions have resulted climate change recently become one of the important issues of the world because it is feared will cause harmful effects for the sustainability of the earth's ecosystem.

Forest area in Indonesia reached 137 million hectares or about 60 percent of the total terrestrial area of Indonesia (Ministry of Forestry, 2007). Based on the results of the second national communication report, forestry sub-sector in Indonesia has the potential to mitigate Greenhouse Gas (GHG) emissions is quite large because about 50 percent of GHG emissions in Indonesia produced from the LULUCF sector (Indonesia: The Second National Communication, 2009). To realize such mitigation potentials one of the efforts that can be done is implementing sustainable forest management (SFM). Thus, the function of forests in the context of climate change can serve as a source, as well as carbon stocks in SFM through activities to maintain and increase the number and quality of the forest (Wibowo, et. al, 2010).

Associated with global climate change, the international meeting held in Rio de Janeiro, Brazil in 1992 (Earth Summit), with important results are: 1) *Declaration on Environment and Development*; (2) *United Nation Framework Convention on Climate Change*; (3) *Convention on Bio-Diversity*, 'CBD'; (4) *the Principles on Forest Management*; and (5) *Document of Agenda-21*. Indonesia has ratified the United Nations Framework Convention on Climate Change (UNFCCC) on June 5, 1992, by issuing Law No. 6 of 1994 on Ratification of the UN Framework Convention on Climate Change. As developing countries which not included in Annex-1 of the UNFCCC, Indonesia committed to implement the mandate of the convention based on the principle of "common but differentiated responsibilities" and strongly supports the objective of the UNFCCC is to prevent an increase in greenhouse gas concentrations in the atmosphere in order not to endanger human life on earth. Various studies have mentioned all countries need to build the infrastructure to adapt (IPCC, 2006 and Stern, 2007).

The next international meeting held in Kyoto Japan in 1997 produced three mechanisms namely Joint Implementation (JI), Emission Trading (ET), and the Clean Development Mechanism (CDM). These mechanisms are legally binding which need to be oblige for developed countries to reduce emissions of Greenhouse Gases (GHGs) at least 5% from 1990 emission levels. Developing countries have no obligation or commitment to reduce emissions in the country, but can participate, especially in doing the Clean Development Mechanism (CDM). For that reason, Indonesia has ratified the Kyoto Protocol through Act No.

17 of 2004 on Ratification of the Kyoto Protocol to the United Nations Framework Convention on Climate Change.

At the annual meeting, which had subsequently held: COP-13 December 2007 in Bali, Indonesia; G-20 meeting in Pittsburg, USA, November 2009; and COP-15 December 2009 in Denmark, Indonesia has declared its commitment to reduce Greenhouse Gas (GHG) emissions up to 26% by 2020 from Business as Usual (BAU) with its own funds and 41% of the BAU with international assistance. Forestry sub-sectors included in the international institutions Land Use, Land Use Change, and Forest (LULUCF) will contribute to the reduction of carbon emissions by 14%. There are, developed countries should assist countries that have a large enough forest to maintain and manage them sustainably. This is urgently needed because one of the functions of forests is to absorb and store carbon, thus keeping down carbon emissions. In this regard, Indonesia has proposed scheme in contributing to the GHG emissions reductions through of REDD / REDD+ (Reducing Emissions from Degradation and Deforestation Plus). REDD activities include reduction of GHG emissions from (1) deforestation on forest conversions and (2) degradation through the practice of SMF, whereas the meaning of "plus" here is in addition to emission reduction efforts, especially in (3) Role of carbon conservation, includes restoration of ecosystem, (4) Sustainable forest management (5) and the enhancement of carbon stock by aforestation/reforestation. Within the context of reduction of GHG emissions from deforestation and forest degradation in the subsequent discussion will be simply called of REDD+ because it already includes the REDD scheme.

Besides, Indonesia also can implement a Clean Development Mechanism (CDM) through Aforestation / Reforestation (A / R CDM) and Voluntary Carbon Market (VCM) which is a scheme for sequestration and storage (RAP / PAN) of carbon. During its development, the two schemes is very slow even stagnant due to both internal and external factors. Internal factors, including (1) perception and understanding of stakeholders against A / R CDM primarily by unit managers, (2) technical problems associated with the determination of land eligibility, baseline and additionally, (3) limited access to information, and (4) the ownership of carbon and profits distribution. While external factors including: (1) overlapping of law and the derived regulations, (2) the security of work area in the Spatial Plan, (3) the procedure to obtain government approvals, (4) land tenure and social problems, (5) funding constraints, and (6) market demand that not clear enough.

REDD+ scheme is currently in the stage of introduction and demonstration activity at several locations and has not received the appropriate methodology to be implemented in forest management unit at least until 2012. Scheme of REDD+, at the advanced annual meeting COP-16 in Cancun, Mexico has recommended that (a) REDD+ activities should be linked with the objective to slow down and prevent deforestation, improve forest cover, and return the carbon lost due to human activities, and (b) with the help of developed countries, provide early clues related to the stage of readiness by making a to do list activities for developing countries that will implement REDD +. Results of the COP-16 is the starting point of Indonesia believes to continue such scheme for REDD+ with a various of activities that will be listed and reported to the international world. To support this commitment, Indonesia has described of REDD as shown in Figure 1.

Figure 1 illustrates clearly that the concept of REDD+ at Indonesia in connection with the management of sustainable forest is the overall activity component of (1) reduction in carbon emissions from deforestation (the forest conversion), (2) reduction emissions from degradation forest (the practice of sustainable forest management), (3) detention emissions / carbon stocks (forest conservation), and (4) an increase in carbon stocks (in reforestation activities, and ecosystem restoration). Eventually, various activities are intended to reduce carbon emissions and increase carbon uptake in order to achieve the balance of net carbon

sinks (net sink / balance). In relation to the implementation of all activities conducted in various forest management units in order to reduce carbon emissions, Indonesia has issued several legal products, government regulations and other regulations.

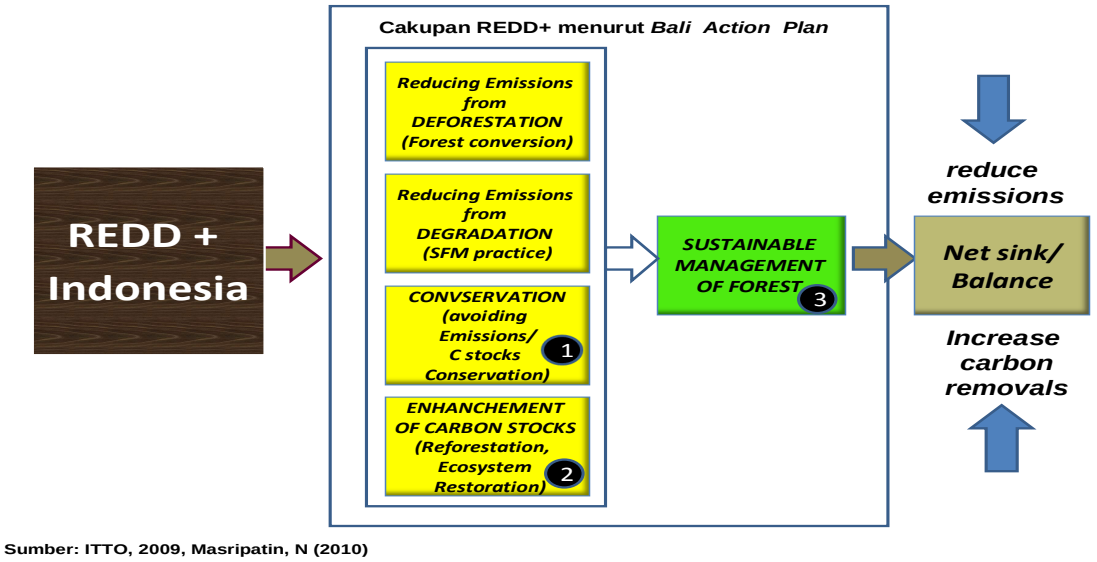


Figure 1. REDD Plus Illustration in Indonesia.

A legal product that shaded these activities in the forestry sub-sectors listed in the Law (Act) No. 41 of 1999 and enhanced by Law No. 19 Year 2004 on Forestry, which mandated the use of environmental services in forest conservation (Article 24), protected forest (Article 26), and production forests (Article 28). Derivative provision of the law is Government Regulation (PP), such as Regulation No. 44 Year 2004 on Forest Planning, and Government Regulation Number 6 Year 2007 enhanced by Regulation No. 3 of 2008, on Forest and Forest Management Planning and Forest Utilization. In the national forest plans as a derivative of the PP No. 44 Year 2004 regarding the Forest Plan states that, for the coordination of forest management needs to establish and functioning the forest management / utilization unit.

Other laws which strongly associated with the implementation of some scheme such as Law No. 26 of 2007 on Spatial Planning and Government Regulation No. 26 of 2008 on Spatial Planning (Spatial); Act No. 32 of 2004 on Regional Government and Government Regulation Number 64 year 1998 on the Transfer of Government Affairs to Regional Forestry Sector as well as Government Regulation No. 38 of 2007 on the Division of Governmental Affairs between the Government, Provincial Government and Regency / Municipal. Besides there are product-related environmental laws namely Law No. 32 of 2009 on the Protection and Environmental Management and Law No. 5 of 1990 on Conservation of Natural Resources and Ecosystems. Some of those laws and regulations are still not in line with each other or different in interpretation and resulting barriers and problems in the implementation.

Beside the regulations, to support the implementation of REDD+ in the framework of sustainable management of forests at Indonesia can be done by establishing and functioning the institutions by integrating its function are very important to be realized, so the coordination between territorial functions and organization of management unit at site-level will work as mandated at Minister of Forestry Regulation No. P.6/Menhut-II/2009 on establishment of Forest Management Unit (FMU) and the Minister of Home Affairs Regulation

No. 61 of 2010 on Guidelines for Organization and Administration of Forest Management Unit for Protection and Production Forest. In addition, several sector policies (Ministry of Forestry) have also issued several regulations relating to the implementation of REDD+, which in some cases still need to be refined to achieve optimum results, such as management units in natural forests (IUPHHK-HA, IUPHHK-RE, and IUPKH), plantation forests (HTI, HTR, and HR), community forestry, and village forests.

Based on some of the informations above, to assess the increase in carbon stocks on reducing emissions from deforestation and forest degradation through the SMF there are some questions to be answered, such as:

a. What kind of external and internal factors that affect the increase of carbon stocks in an effort to decrease emissions, carbon sequestration and eco-friendly products through SMF?

b. Are laws and regulations that currently available at Indonesia already sufficient to support the implementation of REDD+ through SMF, successfully and efficiently?

c. How the REDD+ scheme can be implemented both at the site (FMU) and in the utilization or management units in Indonesia?

d. Can REDD+ schemes through SMF answer the challenges of the future as an effort to decrease emissions, carbon sequestration and the provision of environmentally friendly products?

e. What strategies should be done to SMF related with the increase in carbon stocks so that forest management will remain sustainable?

The questions above are the core of questions that must be answered in study of increasing carbon stocks in of REDD+ through SMF. These questions should cover all the key variables to increase carbon stocks through various schemes that are being developed at Indonesia and internationally acknowledged. Thereby, the meaning of the study has the benefit for all stakeholders in the country and abroad.

For that reason, the International Tropical Timber Organization (ITTO) through the ITTO project PD 007/09 Rev.2 (F) concerned in assessing provisions/regulations related to SMF, Forest-Based Carbon (FBC), Carbon Stock (CS) , uptake of $C0_2$ ($C0_2$ sequestration), and environment-friendly products (green products). Study in this project conducted in order to realize the initiative Indonesia in improving forest carbon stocks to reduce emissions from deforestation and degradation through sustainable forest management. The assessment is needed to develop the base of infrastructure at the implementers field level, which the result can be directed to formulate a policy on carbon-based sustainable forest management (forest-based carbon).

1.2. Objectives

The general objective of this review is to encourage sustainable forest management in Indonesia, as an important option for mitigation of forest-based climate change in order to reduce emissions from and by tropical forests. The particular objective is to develop a national strategy to maintain and enhance forest carbon stocks through SFM in Indonesia. The purpose of this activity is to review theframework and mechanisms associated with SFM in Indonesia as an important option in reducing emissions from deforestation and forest degradation.

Especially in the activities of ITTO Project PD 01/01 007/09 Rev.2 (F) on study and analysis of all regulations and legislation on SFM in Indonesia, forest-based carbon,carbon stocks, the absorption of C02, and environmentally friendly products (green product) aims to:

a. Collecting and analyzing government regulations on sustainable forest management in Indonesia and the forest management unit;

b. Collecting and analyzing legislation on carbon stocks, forest-based carbon, C02 sequestration and environmentally friendly products;

c. Collecting and analyzing data and numerical and visual information on carbon stocks in natural forests and plantations which managed sustainably;

d. Collecting data and information about the success stories of sustainable management practices in natural forests in Indonesia and plantation forests;

e. Collecting and analyzing potential carbon stocks and carbon sequestration in forest production, forest protection, forest conservation and community-based forest plantation;

f. Making recommendations regarding the development unit for forest, namely Forest Management Unit (FMU) at Production Forest, Protection Forest and Conservation Forest, as a base for good practices on sustainable forest management in Indonesia;

g. Delivering recommendations to improve regulations on sustainable management of forests in Indonesia, and proposing a strategy.

Not all items of the study for regulations related with sustainable forest management, forest based carbon, carbon sequestration, carbon stock, and green product fulfill the aims above, but be constrained by scoping of the study, particularly a, b, d, f, and g. Achievement of c and e would be executed by other consultant of ITTO RED-PD 007/09 Rev. 2(F) project.

1.3. Target

According to the Second National Communication (SNC), forestry sub-sector contributes carbon emissions by 1,231 million tons of CO2e, from the national emissions by 3.652 million tons of CO2e. Indonesian carbon emissions between the years of 2000 - 2020 are estimated will be increased from 1.5 Gt CO2e to 2.6 Gt CO2e and forestry sector will be increased from 1.23 to 1.99 Gt CO2e Gt CO2e. Based on these estimations, then the commitment to reduce emissions by 14% for the forestry sector in 2020 amounted to 1.71 Gt CO2e from Business as Usual (BAU).

Because Indonesia has been programmed the construction of the national economic growth ± 7% per year with four (4) pillars which provides employment (pro-job), poverty alleviation (pro-poor), the national economic growth (pro-growth), and keeping attention to environmental (pro-environmental). The efforts to reduce carbon emissions and economic development are two paradoxes. on the one hand, the development requires economic growth by utilizing natural resources, but at other hand must be considered to not damaging the environment with such natural resources.

Indonesia is a large country that has various natural resources and huge human resources, both quality and quantity, with consideration of these conditions (1) democracy is getting better, (2) political reform, the economy which headed toward better, (3) collective awareness over the issue of global climate change of the parties is increasing, and (4) reform of the bureaucracy which is and continues towards better, then the paradox must be resolved.

BOX 1

Strategy of Reducing Emissions from Deforestation and Degradation Plus (REDD+)

REDD+ strategy in order to reduce Greenhouse Gas(GHG) emissions, include (1) reduce the rate of deforestation of forest to non-forest land permanently, (2) reduce the degradation of forests, (3) maintain carbon stocks through forest conservation, and (4) increas carbon stocks by planting/ reforestation and land rehabilitation and forest:

a. Reducing degradation of forests through the application of the principles of Sustainable Forest Management (SFM) through eco-friendly logging done by corporate holders IPHHK-HA, IUPHHK-HT, HTR, HKm and HD. With the implementation of SFM principles, the opportunity to reduce carbon emissions of about 16.5 Mt CO2e in 2020 at a cost of U.S. $ 4.5/ton can be done;

b. Maintaining carbon stocks through forest conservation. By conserving primary forests covering 43 million hectares and 48 million hectares of logged over area (LOA) will reduce carbon emissions by 25.52 million Mt of CO2e at a cost of U.S. $ 2.3/ton;

c. Increasing carbon stocks of forests through planting / reforestation and rehabilitation of forest lands. Forest development activities through planting (reforestation) 1.6 million hectares / year at non-forested area covering 40.071 hectares of forest carbon sequestration will increase by 864 million Mt of CO2e at a cost of U.S. $ 1.1 / t;

d. Rehabilitating peat lands to reduce carbon emissions by 375 Mt CO2e/year a cost of U.S. $ 1.8/ton and provide employment for 6250 persons.

Decrease in carbon emissions for the forestry sub-sector will not sacrifice the national economic development, including to communities living in and around forest areas. Therefore we need the right strategy on both problems.

The strategies mentioned above (Box 1) are expected to reduce emissions by 14% until 2030 for the forestry sub-sector can be realized. This should be supported with the seriousness of the administration and management of forests, and communities with a high level of awareness to guard against the leakages due to agricultural cultivation environment. In addition, it should also be supported by government policies, appropriate technologies and adequate funding, from both domestic and international aid.

1.4. Scope of Study

The scope of study of the provisions / regulations related to SMF, Forest Based Carbon (FBC), Carbon Stock (CS), uptake of C02 (C02 sequestration), and environment-friendly products (green products) including:

a. Collect and evaluate the documents and relevant informations about issues related to forest policy, including institutional and legal frameworks;

b. Identify and analyze the content and context of the current forest-related policies, including institutional and legal framework at Indonesia;

c. Recommend a framework of laws and legal analysis and proposed a mechanism Reducing Emissions from Deforestation and Degradation Plus (REDD+) to be implemented in which sustainable forest management in Indonesia.

d. Collecting secondary data and information (numerical and visual) of carbon in the natural forest and plantation forest in Indonesia;

e. Proposing recommendation of forest unit development, e.g. Forest Management Agency (FMA or "KPH") in the forest production, protection forest, and conservation forest ("KPHP", "KPHL", and "KPHK") as based-best practice of sustainable management of Indonesian forest;

f. Presenting recommendation for improving some regulations of sustainable management of Indonesian forest, and proposing the strategy;

Especially for proposing the strategy on the item e above would be executed separately after collecting information from some studies done by consultants of ITTO-RED PD 007/09 Rev. 2(F) project, research results from demonstration activities, and other references.

Some constraints of the study are as follows:

a. Data and information of community-based plantation forest was incomplete, and dispersed in any locations likes people forest, and not available official data and information;

b. Sometimes best practice of sustainable management of Indonesian forest was exchange each three years;

c. Many regulations related with forestry so that slightly difficult to synchronize one regulation to other regulations accurately associated with reducing emission and carbon sequestration;

d. Not available data and information related to reducing emission and carbon sequestration in Indonesia because now in processing demonstration activities by project developer in some provinces in Indonesia.

1.5. Output

The outputs that will be obtained through this study are:

a. Government regulations on sustainable management and forest management unit are collected and analyzed;

b. Regulations on carbon stocks, forest-based carbon, $C0_2$ absorption, and environmentally friendly products in sustainable forest management at Indonesian are collected and analyzed;

c. Data and secondary information (numerical and visual) of carbon in natural forests and plantations which obtained the certificate by either predicate are gathered;

d. Estimation results on carbon stocks, and the absorption of $C0_2$, environmentally friendly products and $C0_2e$ in natural forests and plantations which managed sustainably;

e. Data and information about the success stories of good practice in sustainably managed forests are gathered;

f. Potential carbon stocks and carbon sequestration in forest production, forest protection and forest conservation can be analyzed

g. Recommendations on accelerating the establishment of forest management units and proposals for improvements government regulations and strategies on sustainable forest management at Indonesia.

1.6. Methodology

The methodology of this study consisted of, **first** an analytical framework on the analysis of of REDD+ and SMF. This framework is a series or stream of factors which influence each other. The point is on how a process of reducing emissions and increasing carbon sequestration generate net sink / balance, and resilience of forest ecosystems through sustainable forest management at Indonesia in global. **The second** is a method of study to obtain data and information then analyze it. The data to be acquired is the numeric and visual data. The **Third** is Focus Group Discussion (FGD) with some experts concerned about climate change. FGD is very necessary because in some cases there are sharp differences about the concept and implementation of REDD+ through SMF at Indonesia from the observer of climate change.

1.6.1. Analytical Framework

Analytical framework is illustrated in Figure 2. The picture describes the logical flow on an increase in carbon stock study for reducing emissions from deforestation and forest degradation. This logical flow initiated into the framework and mechanisms for REDD+ infrastructure through sustainable forest management at Indonesia. Overall, to understand the consistency of policies including the implementation gap, there are two analysis which used in this study, namely analysis of the content and analysis of the structure and hierarchy rules.

Regulations related to the increasing in carbon stocks including laws and regulations derived. The existing legislative regulations to be discussed include legislation and regulations associated strongly with emission reduction activities through several schemes that are part of the system of sustainable forest management at Indonesia. In addition, the substances of analysis were also reviewed regarding the production of forest outside the system, namely the management of ecosystems, both in protected forest and conservation forest. All three systems are located in forest areas, while those outside the system are community forests and the national movement of forest and land rehabilitation. However, the focal point of discussion is more dominant on the scheme for reducing emissions from deforestation and forest degradation through SMF.

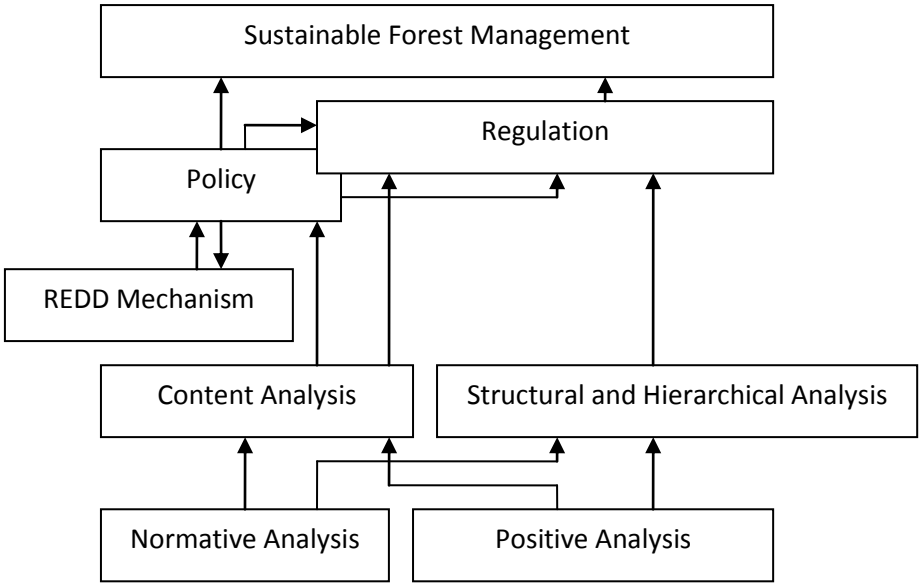


Figure 2. REDD and SMF framework analysis

The more detailed overall flow of the concepts will be discussed in this review, including all aspects associated with REDD+ and SMF, ranging from internal and external factors that can affect the SMF in the context of forest-based carbon, carbon stocks, the absorption of C02, and environmentally friendly products.

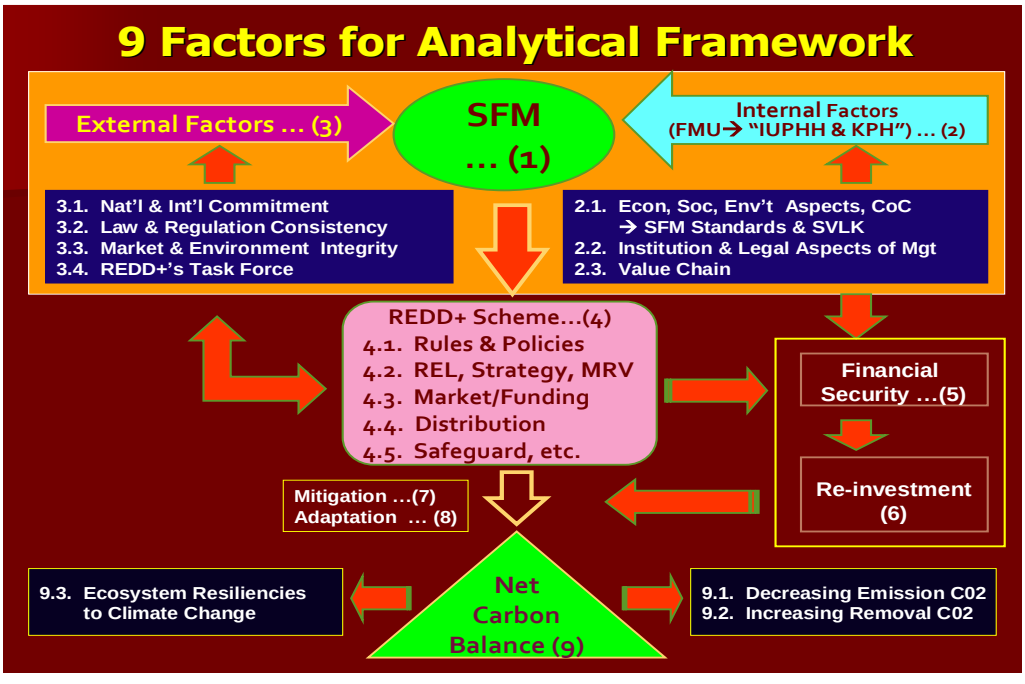


Figure 3. Nine factors to analyze the framework and mechanisms for REDD+ infrastructure in connection with sustainable forest management at Indonesia.

There are minimum of nine (9) factors that being the order of analytical frameworks and mechanisms for REDD infrastructure through sustainable forest management at Indonesia (Figure 3). Furthermore, the center of this study also on REDD+ which including the study of (1) the provisions and policies, (2) reference emission levels, strategy, and MRV (Measure, Report, and Verify), (3) market and funding, (4) distribution (benefit sharing), and (5) safeguards. Through mitigation and adaptation will be obtained net balanced sinks. The net balance sinks are derived from reduced emissions and carbon storage. As an additional analysis, it would be also described how, in turn, to acquire resilience of ecosystems to climate change (Wandoyo, 2011).

1.6.2. Data and Information

Data and informations including data about the laws and regulations under it related to mitigation and adaptation to climate change, mainly of the efforts to reduce emissions and increase carbon sequestration, namely REDD+ scheme through sustainable forest management at Indonesia. The data about the rules obtained from various sources which are directly related to the title of study. While the information on the base of study is a set of data that already has the strength and support of various parties formally (numerically) both nationally and internationally.

1.6.3. Focus Group Discussion

In addition, data and information obtained numerically and visually, as the completeness and to increase confidence, should be required a form of discussion with the observer of climate change. Focus Group Discussion (FGD) conducted at several places, such as the Ministry of Forestry and the National Council on Climate Change (DNPI).

Topics of discussion in the focus group will determine the direction of study because from some preliminary discussions there will be some fundamental differences related to the SMF format that must be agreed related to the domains of sustainable forest management at Indonesia in relation with the implementation of REDD+. Understanding this early becomes important so that the recommendations that will be presented can be accepted by the parties after the FGD and in-depth study by a team of consultants.

The focus of discussion including provisions (legislation) related to SMF, REDD+, implementation of the SMF and REDD at Indonesia, methodologies and technical measurements of carbon stocks and emissions for each scheme for increasing carbon stocks from various forest management systems, and systems management outside the forest area.

2 EXTERNAL AND INTERNAL FACTORS

Increasing carbon stocks is the positive result of carbon sequestration and storage, reduced Greenhouse Gas (GHG) emissions from deforestation and forest degradation. The success of a country in realizing commitments to reduce GHG emissions and storage / sequestration (RAP / PAN) carbon in a certain volume is strongly influenced by external and internal factors. In this regard, which take part as an **internal factors** is the management unit, either KPH or forest utilization unit (business license holders), including RAP / PAN carbon and REDD Plus projects business developers. More specific KPH is a unit of forest management at its territory, while the implementing company is a business license holders of forest resource utilization, better product / service and utilization of forest area. While **external factors** are all factors that affect the unit in its performance in managing the services in order to utilize carbon through of sustainable management actions on forest products originating from outside the unit manager.

Various factors that influence the level of carbon emission reduction and RAP / PAN carbon in order to increase carbon stocks are discussed in this chapter. In addition, also discussed the environmental and market integrity, as well as the task force as a manifestation of the seriousness of REDD Plus in Indonesia as an effort to increase carbon stocks such as external influences. On the other hand, internal factors will affect the performance of forest management unit including aspects of implementing sustainable forest management, as both companies holding a license for utilization of timber forest products (IUPHHK) and or the commercial utilization of environmental services (IUPJL) and institutional unity of forest management (KPH).

2.1. External Factors

Sustainable Management of Forest (SMF) in Indonesia has been practiced since the 1990s and reinforced after an international summit on environmental in Rio de Janeiro in 1992. In a logical framework to assess efforts to increase carbon stocks on REDD Plus through sustainable forest management, there are factors that influence it, both external and internal factors. External factors include (1) the commitment of state and international commitments, (2) consistency of laws and regulations, (3) environmental integrity, social and market, and (4) REDD+ related government institutions.

Beside international commitments, through treaties, as well as in their own country must be supported by legislation and an appropriate policy. Each country also has a commitment in reducing emissions and increasing carbon sequestration on their own (unilateral) with a specific target. In addition, can also increase the target, which can be done through international support (supported/financed internationally) or through bilateral relations and or multilateral.

2.1.1. Commitments and International Agreements

The commitment of developed countries to reduce GHG emissions since the meeting of Rio de Janeiro in 1992 (Earth Summit) to COP-16 in Cancun, Mexico in 2010, has spawned several agreements between developed countries and developing countries in an effort to reduce or mitigate greenhouse effect or greenhouse gases emissions resulting from the accumulation of carbon and various schemes in accordance with the conditions and level of development. From the agreements that have been conducted and be concluded that any country that has the obligation must be committed and bound by law (legally binding) to reduce carbon or GHG emissions in their own countries and help developing countries in efforts to reduce GHG emissions in the developing countries. Therefore, beside declared commitments and international agreements, the developed country in their own country also must demonstrate its commitment to the readiness regarding implementation of REDD Plus.

2.1.1.1. International Level

Developed countries who are members of Annex-1 are obliged to reduce greenhouse gas emissions (GHG) by 5% of carbon emissions in 1990 (the Kyoto Protocol at the Conference on Party, 'COP-3') through the Joint Implementation (JI), Emission Trading (ET), and the Clean Development Mechanism (CDM). Annex-1 is bounded by law (legally binding) to implement the protocol. Meanwhile the developing countries (non-Annex-1) have no obligation or commitment to reduce emissions in their countries, but can voluntarily participate, especially in doing the Clean Development Mechanism (CDM). Based on these commitments, Indonesia has ratified the Kyoto Protocol through Act No. 17 of 2004 on Ratification of the Kyoto Protocol to the United Nations Framework Convention on Climate Change (Kyoto Protocol on the Framework Convention of the United Nations on Climate Change). For the developing countries the CDM scheme can be implemented voluntarily (voluntarily).

During its development, the commitment which is built in the Kyoto Protocol has not shown encouraging results after fourteen years of running (from 1997 to 2011). This is due, among others, to the lack of consistency of Annex-1 in reducing its GHG emissions. Implementation of the protocol in the developed countries such as Japan, Korea, and India, and some European countries generally still running. However, further development is quite apprehensive regarding the fact that Japan in the COP-13 in Cancun openly declared out of the Kyoto Protocol, which is followed by Canada and Belarus afterwards. The position of developed countries has raised the uncertainty of global commitment as what will happen after 2012. Many stakeholders pessimistic that Kyoto Protocol will not continue after 2012. The results of climate change negotiations during these runs tend to be showed the uncertainty of the Kyoto Protocol successor agreement. Indonesia, several other developing countries and some developed countries joined in what so called the Cartagena Group. In essence, this group seeks to find middle ground to reach a maximum agreement through global commitment after 2012.

No exception to the developing countries (non-Annex 1), including Indonesia, it is difficult to meet the requirements of the CDM scheme, even with international assistance, both the technology and funding. There are several developing countries that have been implementing the CDM in the forestry sphere which include India and China. Funding obtained by those countries among others through international institutions such as the bilateral EU (Norway, Germany, Austria, Holland, Finland, Denmark, Italy, Britain, and France).

Among the agreements, there is an agreement on REDD Plus that until now considered as the most advanced compared to the other agreements of climate change issues. REDD Plus agreement in Cancun (Box 2) can be summarized as follows:

a. REDD+ activities must be linked with the purpose to slow down and prevent deforestation, improve forest cover, and return the carbon lost due to human activities;

b. Provide early clues related to the stage of readiness (readiness phase) by making a to do list activities developing countries (with the help of developed countries) who will implement REDD+;

c. Supports a gradual approach (phase approach) which consistent with the objectives of development;

d. Creating the role of developed countries more clearly, namely (i) by providing funding assistance to the developing countries and (ii) doing activities in his country which could reduce deforestation.

International recognition of the REDD / REDD Plus has led Indonesia to consistently reduce carbon emissions. The commitment is shown among others by the statement of President of Indonesia, Susilo Bambang Yudhoyono, during COP-15 in Copenhagen, Denmark, that Indonesia will reduce carbon emissions by 41% if the international aid is provided. However, there will be no international aid, Indonesia will reduce it by themselves up to 26% until 2020. Of these, the forest will take part more than half, namely 14%. To be able to achieve emission reductions of up to 41%, Indonesia should receive foreign aid by international cooperation. In anticipation of climate change, an international cooperation has been done between Indonesia with Norwegian due to GHG emissions associated with deforestation and forest degradation.

2.1.1.2. National Level

In progress of readiness explained that at the national level, the government tasked to sets (1) regulation, (2) methodology, and (3) an international cooperation, including the Forest Carbon Partnership Facility (FCPF) and UNREDD. **First**, as part of readiness strategy implementation, the Ministry of Forestry has issued Permenhut No. P.68/Menhut-II/2008 Concerning on Demonstration Activities (DA) Reducing Emissions from Deforestation and Forest Degradation. Besides, there is a Climate Change Working Group Formation within the Ministry of Forestry (Ministerial Decree No. SK.13/Menhut-II/2008 renewed by Decree No. P.64/Menhut-II/2009) updated with the Minister of Forestry Decree No. 624/Menhut-II / 2010 on the Establishment of the Steering Committee and Working Group on Climate Change Ministry of Forestry. Other readiness, the Ministry of Forestry has issued Permenhut No. P.30/Menhut-II/2009 on Procedures for Reducing Emissions from Deforestation and Forest Degradation (REDD), as well as Permenhut P.36/Menhut-II/2009 on Number of Storage / Carbon Sequestration.

Completion of the National Commission concept of REDD Plus by the Working Group on Climate Change Forestry Department is a follow-up of the establishing Permenhut No. P.30/Menhut-II/2009. REDD National Commission comprises representatives from institutions and other stakeholders are esponsible to regulate and supervise the implementation of REDD. The implementation, Permenhut No. P.30/Menhut-II/2009, technical guidance which is a translation of the five Permenhut attachments No. P.30/Menhut-II/2009 also needs to be prepared with facilitation by the Working Group on Climate Change Forestry Department and the National Commission REDD.

BOX 2
CANCUN AGREEMENT, MEXICO

Several agreements generated from the Conference of the Inter Parties (COP-16) in Cancun, Mexico, in December 2010, are:

a. Commitment of each country to reduce their emissions until 2020 (through the target and RAN-PE gas emissions, where there are already 80 countries who deliver);

b. Increasing transparency and accountability in monitoring and evaluation activities of the calculation of emissions and emission reductions by developed countries (paragraph 40), as well as in developing countries;

c. The agreement requires developed countries to provide technological assistance and funding for mitigation and adaptation activities in developing countries;

d. The instructions that will be developed by the UNFCCC will be used. For NA-1 state will be done through the mechanism of "international consultation and analysis" (ICA);

e. NA-1 GHG emissions reported to and verified by an independent expert panel (paragraph 60-64);

f. Increase efforts to reduce global emissions by reducing emissions from deforestation;

g. Establish a "Green Climate Fund" to help accelerate the realization of investment USD 100 B / yr until 2020 to reduce emissions in developing countries and assist adaptation and mitigation activities (paragraphs 102-111);

h. Build a center networking technology of climate change (The Climate Technology Center and Network) to enhance the learning experience of developing countries from developed countries in implementing clean energy technologies and improve coordination between countries in the use of funding opportunities (funding) and / or financially growing (paragraph 117);

i. Build an institutional adaptation to assist vulnerable countries and has experienced the impact of climate change (paragraph 11-35).

Second, for the methodology there are two main components that must be prepared for the implementation of REDD / REDD Plus, the determination of REL / RL and the construction of MRV systems. Ministry of Forestry worked with the Australian Government has built the Forest Resource Information System (FRIS) and the between Indonesia National Carbon Accounting System (Incas). INCAS is an integrated system, using the overall data from LULUCF or Agriculture, Forestry, and other Land Use (AFOLU), to get the whole profit GHGs. The data are the remote sensing data, data management and forest land, soil and climate data, as well as data growth and biomass plants (Masripatin et.al, 2010). Further noted that the Incas early stages development focused on:

a) the processing of remote sensing data to analyze changes in forest cover;

b) research and analysis of land use changes associated with changes in biomass and carbon stocks;

c) training and technical exchange between the power Australian and between Indonesia experts;

d) its application to the front for the analysis of policy scenarios related to the determination of REL / RL.

It seems that a number of phases still must be passed within the framework of deciding REL / RL and must be built a credible system of MRV.

Third, in addition to the progress of regulatory aspects and methodological aspects of the national level above, there are two initiatives that have some cross-cutting aspects, thus requiring intensive synergy and coordination, a program of the Forest Carbon Partnership Facility (FCPF) and UNREDD. There are several activities under the two programs that support readiness at the national level which support activities related to the establishment and development REL MRV system.

PCPF program consists of three major components that support the implementation of REDD readiness strategy between Indonesia, namely (1) analysis of issues related to deforestation and forest degradation, determination of REL, the development of MRV, co-benefits, impacts and risks, (2) facilitation of the establishment related activities REL and construction of MRV systems, and (3) monitoring process of readiness activities. The UNREDD program consists of three components, namely (1) strengthening the role of the parties, (2) facilitating the activities related to the determination of REL and MRV systems development, and (3) developing the demonstration activities at the district level.

Beside the PCPF programs and UNREDD FCPF, Indonesia has been chosen as one out of five first country to obtain funding from the Forest Investment Program (FIP). These funds will be directed to handle issues in the "REDD" associated with the intervention of handling the root causes policy of deforestation and forest degradation have not yet gained the support of funding from other sources.

2.1.1.3. Sub-National Level: *Demonstration Activity*

In the last five years, some developed countries have made an international cooperation with developing countries as an effort to reduce carbon emissions in order to anticipate more severe impact due to global climate change. For developed countries (Annex-1), in addition to oblige in reducing emissions, also should assist developing countries in terms of capacity building, technology transfer and funding.

So far, several international cooperation have been constructed at **the sub-national level**, namely the implementation of the Demonstration Activity (DA)-REDD as one form of implementation of the mandate of COP-13 decision in Bali. REDD-DA is also an important component of the Indonesia REDD readiness strategy, which various activities related to GHG emission reduction, the role of government, community and other stakeholders are needed to implement. Cooperation that has been and still ongoing is among the Government of Indonesia and Australia, the German Government, Korean Government, ITTO, and TNC.

DA-REDD could also be used as a learning tool (lesson learnt) and to build commitment and synergy between parties concerned. Therefore, the development of DA-REDD is an important component of the Indonesia readiness REDD strategy, which a variety of related activities can be implemented in accordance with the category and a key component of that strategy which involved among the parties. List of provincial / district that has been and is currently implementing a REDD DA / REDD plus can be followed in Inclosure 1.

2.1.2. International Cooperation: Implementation of REDD Plus Indonesia – Norway

On May 26, 2010 in Oslo, Norway, an important agreement on REDD Plus, known as Letter of Intent (LoI) signed by the Minister of Foreign Affairs of Indonesia, Marty Natalegawa and Minister for the Environment and Norwegian International Development, Erik Solheim. The signing of LoI witnessed by President of Indonesia, Susilo Bambang Yudhoyono and Norwegian Prime Minister, Hon. Hubert Ingraham. In short, LoI reflects the desire of high commitment of both governments to participate in reducing GHG emissions, especially from sources which caused by deforestation and forest degradation that takes place in tropical forests of Indonesia.

Norway promising partnership with a total funding of USD one billion will be implemented in three phases beginning in 2010 until 2016**, the first or preparatory phase, phase transformation, and phase contributions.** The first phase from June to December 2010 basically includes five main activities that was crucial, namely (1) preparation of REDD Strategy Plus, (2) establishment of REDD Plus Agency, which is a special agency that is responsible to the President for the implementation of REDD Plus (3) the establishment of institutions that are specifically develop a measuring system , reporting and verifying carbon emissions, known as the MRV (Measurable, Reportable, and Verifiable), (4) preparation of architectural plus funding for REDD activities, and (5) election of two examples provinces for implementing REDD Plus. The fifth tasks directly led by the President, who then entrusted to the Chairman of UKP4 to coordinate with various agencies / institutions, including the National Council on Climate Change (DNPI), Board of National Planning and Development (Bappenas), Ministry of Environment, Forestry, Agriculture, Finance, Internal Affair Institution, and other agencies, both associations and non-governmental organizations (NGOs).

The signing of LoI reflects the seriousness of the government to solve the problems of deforestation and forest degradation in Indonesia. Throughout history, this is the first time that the issue of forest damage is handled directly by the heads of state such as in Indonesia. It shows a remarkable commitment to improve the forest and environment and provide a real contribution in global effort to reduce. The coordination is involving various parties, including governments, NGOs, and academics are aiming to achieve a better future for Indonesia. This effort was well designed to anticipate the impact of social, economic, and political that might occur in the next twenty years.

REDD Plus is now part of Indonesia's obligation to reduce carbon emissions and to be a ban on forestry-related activities through the clearing of natural forest conversion and peat land after the LoI was signed between the government of Indonesia and Norway. Since then, Indonesia increasingly drew international condemnation if it is inconsistent with its commitments. However, Indonesia has become firmness of the few things related to that issue. To avoid polemic, the Presidential Instruction No. 10 of 2011 has published, regarding New Permit Delays and Improving Governance Primary Forest and Peat Land. In the Instruction included exception of the allowance can still be granted with a new permit (See Box 3).

BOX 3

Impact of the President's Decree, Number 10, 2011

For realizing to LoI signature between Norway and Indonesia, President of Republic of Indonesia has published President's Decree Number 10, 2011 about Suspending New License and Revised Managing Natural Forest and Peat-land. By realizing the decree, regions impacted the decision was approximately 64.2 million hectares and majority was protected/conservation forest zone. The belied was not included as follows:

(1) Requesting that has got principle permit from Ministry of Forestry;

(2) Executing vital national development, e.g. geothermal exploration and exploitation, oil and gas, electric power, and land for rice and cane;

(3) Continuing the forest utilization license and or using existing forest zone as long as the license still valid;

(4) Restoring the ecosystem.

This latest item could be excepted if any degraded forests (in natural forest category and peat) and would be restored. The decree not avoided investor for developing crop estate because there was still opportunity to use secondary forest of 36.6 million hectares (Purnomo, 2011). Exploited forest utilization or fired (called by secondary forest) could still be used to expand economy activities. It was still make sense if investor would propose restoration of ecosystem license and utilization of environmental services, including for developing forest-based carbon management.

2.1.3. Related Regulations to Reduce Emissions and Increase Carbon Stock

It has mentioned in Chapter 1 that the increase in carbon stocks for Indonesia can be performed on REDD Plus scheme through sustainable forest management or SFM, by (1) reduction of carbon emissions from deforestation (the conversion), (2) reduction emissions from forest degradation (at sustainable forest management practices), (3) detention emissions / carbon stocks (forest conservation), and (4) an increase in carbon stocks (on reforestation and ecosystem restoration activities). Based on the four locus, Simon H. (2005) distinguish the concept of sustainability, namely for the sustainable management practices in production forests called "Sustainable Resource Management" (SRM), while for non-production forests (protection forests and forest conservation) is called "Sustainable Ecosystem Management" (SEM). Both terms (SRM and SEM) in this context become a concept called Sustainable Management of Forests (SMF) or synonymous with the understanding that widely known people, that is Sustainable Forest Management (SFM). Provisions that support the action in each area are embodied in various laws that are described below.

Provisions that support the four activities which mentioned above, especially in efforts to increase carbon stocks is the use of environmental services contained in the legislation (Act) No. 41 of 1999 on Forestry enhanced by Act No. 19 of 2004. The law mandating the use of environmental services in forest conservation (Article 24), protection forests (Article 26), and production forests (Article 28). In some ways, the context is different with the use of environmental services of carbon trading. This difference will be discussed in a separate chapter. In addition, outside the forest areas there are still scheme the A / R CDM that also a part of REDD+ scheme through the SMF. Besides that Act, other Acts have been mentioned in

Chapter 1 and will be discussed in separate chapters according to factors that may affect the implementation of REDD+ through sustainable forest management.

Basis of the law that relating to the implementation of REDD+ in Indonesia are:

(1) The Constitution of the Republic of Indonesia Year 1945, Article 4, paragraph (1);
(2) Act Number 5 Year 1990 on Bio-Natural Resource Conservation and the Ecosystem;
(3) Act Number 6 Year 1994 concerning Ratification of the United Nations Framework Convention on Climate Change;
(4) Act Number 41 Year 1999 on Forestry;
(5) Act Number 17 Year 2003 regarding State Finance;
(6) Act No. 17 of 2004 on Ratification of the Kyoto Protocol on the Framework Convention of the United Nations on Climate Change;
(7) Act Number 25 Year 2004 on National Development Planning System;
(8) Act Number 18 Year 2004 on Plantation;
(9) Act Number 32 Year 2004 on Regional Autonomy;
(10) Act Number 17 Year 2005 Regarding the Long Term Development Plan (RPJP) Year 2005 to 2025;
(11) Act Number 26 Year 2007 Concerning Spatial Planning;
(12) Act Number 31 Year 2009 on Meteorology, Climatology and Geophysics;
(13) Act Number 32 Year 2009 Concerning the Protection and Environmental Management;
(14) Act Number 41 Year 2009 Concerning Protection of Land for Sustainable Food;
(15) Government Regulation number 25 year 2000 concerning Government Authority and Provincial Authority as an Autonomous Region;
(16) Government Regulation number 4 year 2001 concerning Control on Damage and Environmental Pollution Related to Forest or Land Fire;
(17) Government Regulation Number 44 Year 2004 on Forest Planning;
(18) Government Regulation Number 45 Year 2004 on Forest Protection;
(19) Government Regulation Number 27 Year 2007 Concerning Analysis on Environmental Impact;
(20) Government Regulation Number 6 Year 2007 on Forest Management and Making Forest Management Plan and Forest Utilization;
(21) Government Regulation Number 38 Year 2007 on Authorizing Government between Central and Local Government (Province, District/City);
(22) Government Regulation Number 2 Year 2008 Concerning Kind and Tariff of Non-Tax Government Revenue from Forest Zone Usage for Mining out Forest Activity Conducting on Ministry of Forestry;
(23) Government Regulation Number 3 Year 2008 on Improving Government Regulation Number 6 Year 2007 on Forest Management and Making Forest Management Plan and Forest Utilization;
(24) Government Regulation Number 76 Year 2008 on Forest Rehabilitation and Reclamation;
(25) Government Regulation Number 60 Year 2009 on Improving Government Regulation Number 45 Year 2004 on Protection Forest;
(26) Government Regulation No. 2 Year 2009 on Procedures for Procurement of Loans and / or Acceptance of Grants and Loans Forwarding and / or State Grant;
(27) Government Regulation Number 26 Year 2008 Regarding National Spatial Plan;

(28) Government Regulation Number 10 Year 2010 on Procedures and Functions Appropriation Changes in Forest Areas;
(29) Government Regulation Number 15 Year 2010 Concerning Spatial Planning;
(30) Government Regulation Number 36 Year 2010 on Natural Tourism Utilization in Wildlife Sanctuary, Forest Park, Botanical Garden, and Natural Tourism Park;
(31) Government Regulation Number 68 year 2010 on Form and Procedure of Community Role in the Spatial Landscaping;
(32) Government Regulation No. 24 of 2010 on the Use of Forest Area;
(33) Government Regulation No. 5 of 2010 on National Medium-Term Development Plan (RPJMN) Years from 2010 to 2014;
(34) Government Regulation Number 28 Year 2011 on Nature Sanctuary Management and Nature Preservation Zone.

The discussion below starts from the PP to the implementation of regulations of the regulations to the Director General of Forestry Ministers each in the Ministry of Forestry. PP and the implementation regulations under it will be discussed especially those which directly related to the implementation of REDD+ through SMF. Meanwhile the hierarchy of laws and regulations mentioned above will be elaborated on the analysis of legislation related to the implementation of REDD+ in the chapter or sub-chapter of its own.

2.1.3.1. Legislation Regulation of Reducing Carbon Emission from Deforestation in Forest Conversion

Changes in forest allocation according to Law Number 41 Year 1999 enhanced by Act No. 19 of 2004 is the possible example of forest conversion into non-forest for plantations, mining, urban expansion, and others. This changes can be done if the changing of the landscape through an integrated research and approved by the House of Representatives (DPR). Likewise, changes in forest function, for example from production forests into protected forest or forest conservation or vice versa. In this context, changes in forest production from natural forests to plantations are not an act of deforestation because its function will still remain as production forest. This is consistent with the definition according to the FAO and the World Bank (1996) who state that deforestation is permanently changing the function of the forested area to be reforested. This definition is concerned about changes in forest cover from the standpoint of carbon emissions could restrain the rate of increasing of carbon emissions into the atmosphere (Aji, 2007).

Unlike the definition used by NGOs, such as Green Peace (2007) that any change of forest cover is deforestation though carried out by the farming community with small-scale (1-2 hectares). Such conditions claimed as deforestation, although it is claimed will be back in a secondary forest. It is necessary in determining the definition of a law to avoid confusion in implementation. According to Murdiarso in Pedroni (2009), deforestation is the loss of forest functions that occur due to changes in the function of forests into non-forest as a savanna (grassland), wetlands (wetland), plantations (cropland), settlement, and the use of other (other land). Figure 3 shows the change in dioramas of forests into non-forest in the context of REDD and REDD+, then returned to forest. In the submission to SBSTA-25, Indonesia proposed the definition: *"Deforestation claimed as loss of forests due to human activities, including conversion of forest to other uses which have lower carbon stocks, forest loss and degradation as a result of an ongoing process as a result of successive fires and timber harvesting is not sustainable".*

By this definition it means, secondary forest enrichment activities, prevention of forest conversion to other uses which have lower carbon stocks, illegal logging activities and fire

prevention, application of silvicultural systems with low-impact logging (reduced impact logging), defend or save the carbon in forests conservation and protected areas, can get into the category of REDD plus. Wandoyo (2011) mentions that the efforts can be made to prevent emissions and carbon sequestration are: (1) the practice of sustainable forest production, (2) protected area management and conservation, (3) limitation of forest conversion, (4) eradication of illegal logging, (5) forest fire management, (6) rehabilitation of degraded lands and forests, and (7) HT and plantation development on degraded land.

Changes in the function and designation of forests are regulated by Government Regulation No. 10 of 2010, concerning Procedures and Functions Appropriation Changes of Forest Area, and the Minister of Forestry (Permenhut) Number P.34/Menhut-II/2010 on Procedures Function Changes in Forest Areas, and later reaffirmed by Permenhut P.10/Menhut-II/2010 Number of Audit Mechanisms and Forest Areas. During its development, regional interests are usually put forward a change in the designation because it has always been associated with increased revenue, expansion of the city, and urging residents. Conversions of forest are clearly stated claimed as deforestation. This action causes the rate of deforestation carbon emissions become very large due to the loss of carbon stocks caused by the process of forest clearance, land, burning trees and other vegetation. To be more transparent and accountable, the change of function must involve an independent agency (Minister of Forestry Regulation No. P.36/Menhut-II/2010 about Team in the Framework of Appropriation Changes and Function Research Forest).

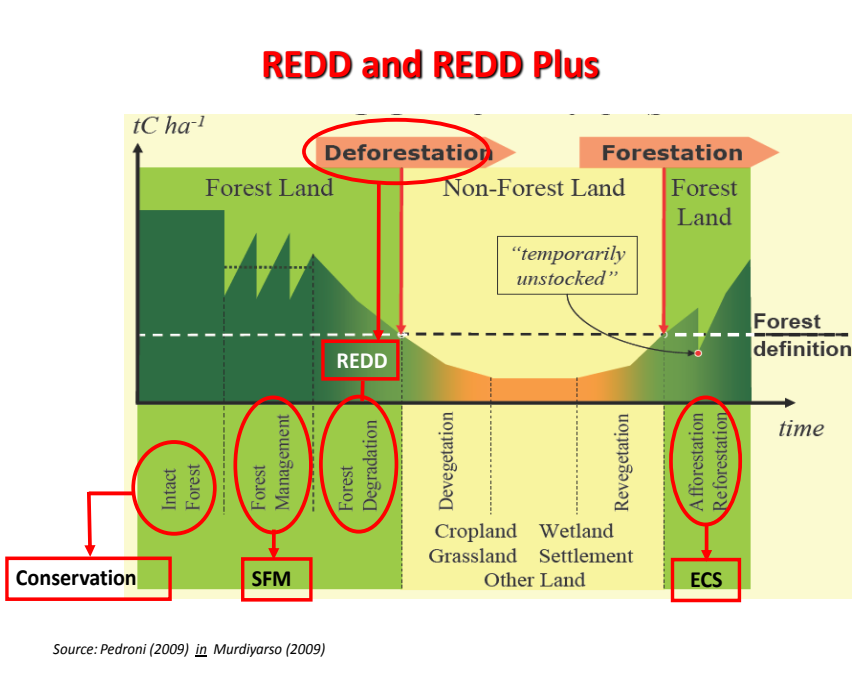


Figure 4. Diorama forest land use change - non-forest - forest land

Alteration (conversion) will greatly affect the certainty of work area for the management unit. Result of changes (revisions) of Spatial Planning on Regions (RTRW): province regency likely would reduce the size of work area management unit because in general area of APL which has been limited mostly used for certain interests. Although it later will be converted into non-forestry cultivation region (KBNK) with crop plantation,

transmigration, or other, but will not be able to restore carbon stocks as before, except areas which previously only overgrown weeds, bushes or wasteland.

The existence of Indonesia's commitment to reduce carbon emissions, through the strategy of REDD+ has allocated forest land to be converted into non-forest. The strategy was made by reducing the rate of deforestation of forest to non forest change permanently through the provision of areas for oil palm development in other areas of use (APL) and which area that can be converted production forest (HPK) lands (vacant land, *Imperata* grass and shrubs) and not in peat lands by applying non-forest burning. With the average development on 300-500 thousand hectares per year, oil palm plantations will contribute to decrease its emissions by 28.8 million Mt of CO_2e per year or 288 million Mt of CO_2e in 2020 to know the average cost of U.S. $ 0.40 / ton.

2.1.3.2. Legislation Regulation on Reducing Emissions from Forest Degradation in Sustainable Forest Management Practices

Forest degradation is generally defined as a decrease in tree density and / or increased destruction of forests which is to loss of forest products and ecological services from forests. According to the FAO definitions in Rizaldy Boer (2010), changes in forest class (eg, from closed forest to open forest) which are generally negative effect on the stand, and in particular, production capacity will be lower. Common causes of forest degradation include selective logging, firewood collection, road construction, and agricultural cultivation.

Ministry of Forestry (2009) stated that forestry activities that can degrade the forests include logging, encroachment for farming, forest fires, mining and others that result in decreased function of vegetation cover. In the practice of sustainable forest management, factors that can degrade it should be no or very few, except for felling trees for timber forest product utilization. Logging if done correctly then the factor of damage to forest stands to be very few. Techniques for doing this with Reduced Impact Logging (RIL) are recommended through circulars Director General of Production Forest Management Number 274/VI-PHA/2001 dated 23 February 2001.

Good forest management practices have been regulated based on the silvicultural system through Permenhut Number P.30/Menhut-II/2005, dated October 13, 2005, on Standards in Natural Forest Silviculture Systems Dry Land and / or Natural Forest Land Wet / Swamp. Performance assessment of sustainable forest management (IUPHHKHA, HTI, HTR, HKm, HR, and RE) is regulated by the Minister of Forestry Number P.38/Menhut-II/2009 on Standards and Performance Assessment of Sustainable Production Forest Management and Verification of Legality of Timber Permit holders or on Forests. This was followed by the Directorate General of Forestry Production Development Regulations (CPC) Number P.06/VI-Set/2009 on Standards and Performance Assessment Management of Production Forest and Timber Legality Verification jo CPC Director General Regulation No. P.2/VI-Set/2010 is about the guidelines for Performance Assessment of Sustainable Production Forest Management and Timber Legality Verification. According to the rules, the certification of sustainable forest management can be whether mandatory or voluntary. Status of voluntary certification of SFM using standard LEI Indonesia, 'LEI', Forest Stewardship Council, 'FSC', and others do not set / recognize specifically. The implementation by management unit is often encounter a decrease in performance, but there is also a rising prediction. Management Unit, whose performance is declining, can be assumed that existing carbon stocks in their working area must be decreased, in other words, releasing carbon emission.

Meanwhile, silvicultural systems for industrial tree plantations (HTI) is regulated by Permenhut Number P.60/Menhut-II/2007 on Amendment Regulation of the Minister of

Forestry Number P.19/Menhut-II/2007 Procedures for Issuing Work Permits and Expanding the Area of Utilization of Forest Products Wood in Forest Plantation in Plantation in Production Forest. On the community based plantations (HTR) is regulated by Permenhut Number P.23/Menhut-II/2007 jo Number P.5/Menhut-II/2008 on Procedures Application IUPHHK-HTR in Plantation. Community Forest (HKm) regulated by Permenhut Number P.37/Menhut-II/2007, P.18/Menhut-II/2008 jo, P.13/Menhut-II/2010 is about the Community Forest.

Within the production forest area, there is also a land / wetlands / peat claimed as largest carbon storage. When a major fire occurred in 1997/1998, this region accounted for the largest peat land carbon emissions in Indonesia. The thicker of the peat layer is greater the level of carbon emissions. Therefore, cooperation between Indonesia and Norway through the LoI signed in May 2010, the governments stop the new license to manage the conversion of peat lands and the primary natural forests. But for management units that have obtained business licenses are allowed to continue to manage the forests, both natural forests and forest plantations, including the "convert" the former natural forest in the Logged Over Area (LOA) to serve as forest plantations (Permenhut Number P.50/Menhut- II/2010) to enable the release of new licenses for the business area of forest plantations. Although it criticized by various parties, but this is the "middle way" that must be taken by the government to not cause a lawsuit by the aggrieved party. The government also opened the opportunity for management unit to not only rely on wood-based business, but also can apply Business License for Environment Services through carbon services.

If the unit remains in business management utilization of timber, then IUPJL will not be requested to the Ministry of Forestry. But if the unit left the entire management of the business activities of timber utilization, then the unit can apply a total management of ecosystem services or carbon trading by asking IUPJL through REDD Plus scheme. This scheme regulated in Permenhut Number P.30/Menhut-II/2009 on Procedures for Reducing Emissions from Deforestation and Forest Degradation (REDD). For this, the forest management unit will be changed by the original activity of wood-based efforts to be carbon-based (forest-based carbon: carbon storage and sequestration) scheme through REDD / REDD Plus.

If the company did not leave in total and permanent effort in the timber utilization and environmental carbon services, then the unit must submit license (IUPJL) Management to combine the pattern. So, management units will try in the timber utilization and environmental carbon services of carbon to REDD Plus scheme through SMF - meaning the forest not as a basis, except IUPHHK to defer moratorium within a certain time[1] - but it becomes a carbon sink and environmentally friendly products. The size of a value performed using the concept of addition. There is no regulations for such things so it needs a policy that regulates the procedures for assessment of management units for the environmental carbon services according to the concept of addition, including the method of calculation with a particular method. In addition, the duplication in the management of licenses in one area will lead to legal implications. Therefore should be considered a simple form of licensing which can accommodate the dynamic application of environmental services.

2.1.3.3. Legislation Regulations on Reducing Emissions/Carbon Stock in Forest Conservation

[1] PT. Inhutani I in Jamuju, West Sulawesi Province have applied IUPHHKHA units covering approximately 80,000 hectares to suspend logging for 30 years to cooperate with Australia on reducing GHG emissions from deforestation and forest degradation

Forest Conservation (HK) is a forest that has the characteristics of biological diversity or the uniqueness of natural ecosystems, flora and fauna that should be preserved and maintained its existence. Conservation of forest cover, nature reserves, and wildlife reserves can be done on dry land and swamp / peat. Forest conservation regulated in Act No. 41 of 1999 (Article 7) and utilization stipulated in Articles 24 and 25. Another act which is particularly relevant to forest conservation is the Act No. 5 of 1990 on Conservation of Natural Resources and Ecosystems. Conservation of forests also has great potential for utilization of carbon environmental services in addition to the environmental services of water.

The HK serves as the preservation of nature and wildlife and also able to maintain carbon stocks. Conservation of forest area in the form of peat lands located in the region will store very large carbon compared to the mineral soil with no peat. According to the study results which conducted by University of Hokkaido, the amount of carbon held in the peat-land areas of Central Kalimantan, is about 15 to 20 times the amount of carbon held in soil minerals (Osaki et.al, 2011). DNPI reports that 21 million hectares of total peat land area in Indonesia, about 18 million hectares are in forest areas, and the rest about 3 million hectares is spread outside the forest area which is generally controlled by local communities or private properties. In Box 3 explained that throughout the world, threatened by peat drainage and fires, but dramatically in Indonesia, more than 300,000 hectares degraded every year and degraded about 10 million hectares until now.

Emissions from Indonesian peat are generally caused by decomposition after drainage and forest fires. Emissions are caused by the decomposition of about 600 million tons of CO_2 and decomposition of fire about 650 million tons of $C0_2e$ per year. Deforestation for conversion to other land use and degradation through timber extraction has resulted in successive emission of about 240 and 45 million tons of $C0_2$. The amount of carbon emissions caused then encourages the government to reduce emissions from peat lands due to decomposition, drainage and fire swamp forest / peat.

BOX 4
The Threats of Peat lands in Indonesia

a. Globally, peat lands cover only 2.7% of land area, but it stores about 30% $C0_2$ on earth. Indonesia tropical peat lands controls only 5% of global peat land area, but contributed more than 50% of global emissions come from tropical peat lands.
b. Around the globe is threatened by peat drainage and fires, but dramatically in Indonesia, more than 300 000 hectares degraded every year and degraded about 10 million hectares until now.
c. Emissions from Indonesian peat are generally caused by decomposition after drainage and forest fires. Emissions which caused by the decomposition are about 600 million tons of CO2 and caused by fire about 650 million tones of $C0_2$ per year. Deforestation to convert to other land use and degrades through timber extraction has resulted in successive emission of about 240 and 45 million tons of $C0_2$.
d. Propulsion of conversion and peat land degradation are numerous, ranging from the range of needs for development and land use change to policies that do not qualify as a million hectares project, and a lack of understanding and caring.
e. Termination of peat land to conversion agricultural usage would produce a quick victory for the government, and many observers and recognition by other states, however will lead to protests by business sectors such as oil palm and wood-pulp, and would not be attractive to small-scale farmers.
f. Water management has a high feasibility because not only will produce emission reductions, but also a lower risk to the planting and the owner of the concession which is caused by a small number of fires in the dry season and avoid flooding in the rainy season.

REDD Plus scheme to HK and HL is possible applied, primarily for storage (PAN) carbon (carbon sinks) through efforts to preserve forest ecosystems (conservation, protection and safeguarding of forests) and RAP carbon (carbon sequestration) through natural succession and / or artificial (planting) to improve the forest ecosystem.

2.1.3.4. Legislation Regulation on Enhancing Carbon Stocks in Afforestation Activities / Reforestation (A / R) and the Forest Ecosystem Restoration

Definition of Afforestation (A) is the planting of forests that previously non-forest areas. According to the terminology of the Clean Development Mechanism (CDM), that the planting of trees or land conversion activities not forested since 50 years or more into forest. Reforestation (R) is a forest plantation development that had previously been forest. Meanwhile, according to CDM, reforestation is a planting or reforestating forest land whose conditions and not forested since 31 December 1989. Both provide almost the same meaning, however only differentiated at the terms of time.

Specifically for A/R has been adopted in CDM scheme which has been started since Kyoto Protocol, year 1997, but the development was very slow because of the difficulty level in planning and implementing is very high. Many developed countries are not consistent to fulfill the agreement of the Kyoto Protocol results although it has been bounded by law (legally binding), either through Joint Implementation (JI), Emission Trading (ET), and the Clean Development Mechanism (CDM).

In the concept of reducing emissions from deforestation and degradation, the scheme for A / R CDM can be incorporated into the scheme of REDD plus. In Indonesia, scheme A / R

CDM are still possible to be implemented by the management unit that has a permit IUPHHK-HT/IUPJL/HPHA/ right owned land. A/R CDM scheme have been set by Permenhut Number P.36/Menhut-II/2009 Concerning Licensing Procedures for business of carbon sequestration and / or Carbon Storage at the Forest Production and Protection Forests.

In afforestation and reforestation procedures within framework of Clean Development Mechanism is unlikely to be continued in Indonesia considering the high difficulty level and the recording of minimum land use change i.e. they should be able to prove that the area does not exist in a similar project or a vacant land / grass since 31 December 1989. To implement the project A / R CDM in Indonesia, the project developer needs to consider the Act Number 32 Year 2010 on the Protection and Management of the Environment (formerly the Act Number 23 Year 1997 on the Environment). This new law regulates more detail about provisions on Environmental Impact Assessment (EIA) and put the exploitation of renewable and nonrenewable resources is a mandatory activity that must be covered by the EIA document. Unfortunately, A/R CDM scheme would be increasingly difficult and lengthy procedures to be implemented by the developers. With this provision, then A / R CDM getting more difficult and long procedure will be implemented by the developers.

Ecosystem restoration is an activity to build the natural forest areas at the production forests which have an important ecosystem (flora, fauna and non-biological) to achieve a balance of biological and ecosystem. Forest restoration business license is included into the license for utilization of timber forest products (IUPHHK-RE). Within a certain time (e.g. 35 years), management units are not allowed to chop wood until forest reaches equilibrium conditions in which the use of forest ecosystems take precedence over non-timber forest products rather than wood. If a company wants to utilize timber, then they must apply for permission for utilization of timber at the natural forest (IUPHHKHA) or plantation forests (IUPHHK-HTI).

These types of management are more suitable to carbon basis compared with the results of non-wood forest products or timber. However, its feasibility should be considered carefully against the opportunity cost (the company) if you have to choose the base. Therefore, the selection of forest restoration areas is more likely on wet soil or swamp forest / peat soil than dry. This is understandable because of the potential carbon stocks are very high if the efforts are made to scheme REDD+. However, for the holders of IUPHHK-RE should be filled with IUPJL if they want to get the environmental services of carbon. Currently, there is also a holder of IUPHHK-RE that utilize forest restoration to purpose the release of orangutans (*Pongo* sp)[2], ecosystem flora & fauna (birds, tigers, tapirs, etc.), and / or utilizing non-timber forest products in various forms and types.

2.1.4. Input of Technology and Incentive Funding REDD Plus

Developed countries (Annex-1) are the largest carbon market in relation to global climate change. Every developed country or a combination of them which apart from having the obligation to reduce emissions in their own country should also assist developing countries in terms of technology and funding. Input technology along with the readiness of developing countries to participate the mandatory emissions reduction efforts. While voluntary depends

[2] PT. Orangutan Habitat Restoration Indonesia (RHOI) has been programmed utilization of forest restoration as the primary purpose to release of wild orangutans, in addition to other uses such as ecotourism services, carbon trading, and others since 2010.

on which countries will help the technology, but the effort are not included as a target country in emissions reduction.

A funding system (funding) that are mandatory will be distributed to a country and concentrated in a certain financial institution established by the National Government. Currently, Indonesia is preparing a special financial institution to the disbursement and investment in efforts to reduce and increase carbon stocks. The agency is under the supervision of the Ministry of Finance.

2.1.4.1 Input of Technology

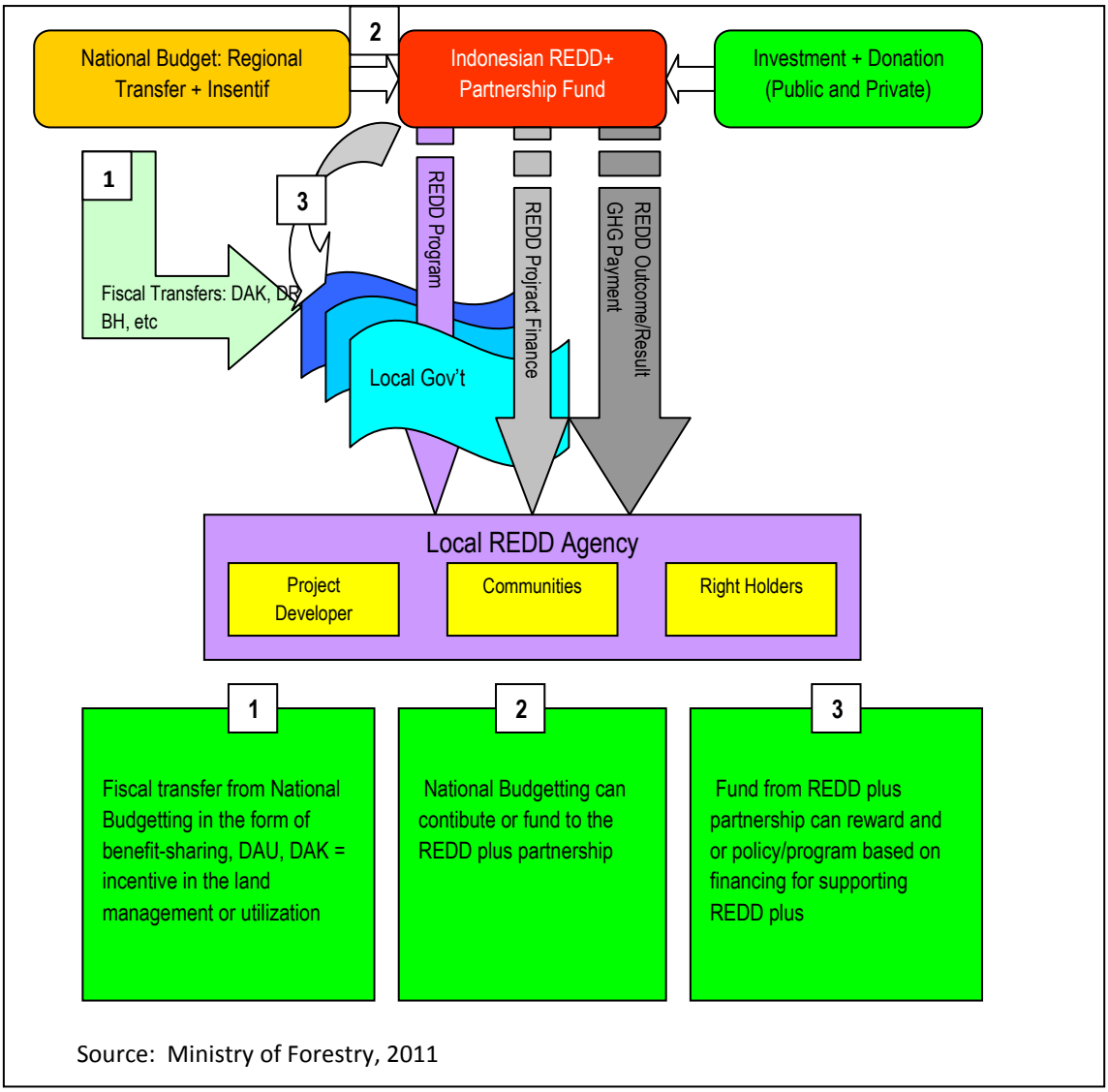
The technology mentioned is an effort to decrease Greenhouse Gas Emissions (GHG) caused by energy combustion of fossil fuels by industry. This category is actually not an obligation for developing countries to reduce greenhouse gases because the fact found that these sector only donate less than 20% of emissions.

The use of technology to reduce greenhouse gases tends to be more expensive. Therefore, it becomes plausible if then the Annex-1 countries distribute the financial assistance at once to lower GHG emissions for the country through the countries of non-Annex-1. Recent developments, through the COP-15 and COP-16, Annex-1 will help on reducing GHG emissions instead of the CDM scheme, but more inclined to other schemes, such as REDD+ and PAN / carbon RAP. The technology assistance is no longer an issue of interest in climate change mitigation compared with financial assistance through the scheme.

In some countries, such as the USA and the EU has begun to apply the technology to reduce GHG emissions by using an absorbent (exhaust) CO2 gas before entering the Earth's atmosphere. More rationally forwards, developed countries can use environmentally friendly fuel as a substitute for fossil fuels with environmentally friendly fuel (pellets, bio-energy or biodiesel, etc.). The target of replacement of fossil fuels is depending on the commitment of the country, for example between 50-20% of fossil fuel use.

2.1.4.2. REDD Plus Incentive Funding Mechanisms

Why is it called the incentive? According to the international fund, a country that implement REDD Plus will receive incentives compensation as a part of efforts to reduce emissions from degradation and deforestation, as well as carbon sequestration and storage. Funding mechanisms conducted through financial institutions or financing instruments REDD Plus Indonesian Partnership Fund. Its implementation is built to facilitate the enforcement of the REDD Plus program in Indonesia permanently through the Ministry of Finance and distribution of funds covering all sources, both public and private, foreign and domestic as well as to reach all beneficiaries REDD Plus get to the people in and around forest (Ministry of Forestry, 2011).



Source: Ministry of Forestry, 2011

Figure 5. Funds Receiving and payment schemes of REDD plus

REDD Plus funding system will be constructed flexibly by allowing the acceptance of public and private funds from abroad and domestic. The sources of funding are various types of funds both for the input, investment, and payment of output / performance. Its distribution has several types such as to the project developers, communities, local governments and National REDD Plus. Funds will be used to reduce deforestation and degradation in order to decrease GHG emissions and sequestration / storage and creates additional benefits (co-benefits) such as the preservation of biodiversity.

Implementation benefits from REDD Plus Indonesia Fund Partnership in conducting development funds, fund management, and disbursement of funds can be illustrated schematically in Figure 5. This scheme reflects the system of management of funds from many sources to multiple destinations and types of beneficiaries (private, public, local governments) as well as the benefits to be gained from REDD Plus.

2.2. Internal Factors

The definition of internal factors is all production factors in forest management units (as well as conservation forest and protected forest), which directly affects the performance of the management unit itself, both corporate (business license holders) and non-corporate institutions (e.g. Forest Management Unit - KPH) to efforts to increase carbon stocks through SMF. These factors mainly include: (1) aspect of sustainable management of forest, i.e. economic, social, and environmental, including legality of timber (chain of custody / 'CoC') through the timber legality verification (VLK), (2) the quality of human resources, organization and assets management unit, and (3) value chain of REDD Plus operated by unit manager.

For sustainability appraisal performance of forest production and rights forest in accordance with a standards of Minister of Forestry Regulation No. P.38/Menhut-II/2009 on Guidelines for Performance Assessment of Timber Legality Verification and SFM. Furthermore, the Director General of Forestry Production Development Director CPC issued Regulation No. P.06/VI-Set/2009 and P.02/VI-BPPHH/2010 added in the criteria and indicators, those are (4) aspects of prerequisites or preconditions, (5) health or holding company, and (6) verification of the legality of timber. For forest protection and forest conservation there has been no standard used to assess the performance of the sustainable management of forests on ecosystems, as well as to ecosystem restoration[3]. Specifically for forest conservation (HK) and protected forest (HL) not dominantly discussed in these chapters. Currently, guidelines for implementation of ecosystem restoration using the natural forest management standards (see Box 5).

2.2.1. REDD Plus within Sustainable Forest Management

The entire factors are a standard component in the performance appraisal management company of sustainable forest production. Furthermore, in the development of forest management systems of production, KPH has central role in forest protection and forest conservation, in addition to be a manager (company). Moreover, if the unit production manager is conducting the use of forest carbon stock for enhancement purpose[4] then they must obtain the new license as a business license for Environment Services (IUPJL) Permit in addition to Timber Utilization on Natural Forest or Plantation (IUPHHK-HA/HT/HTR / HKm). For forest village it is a Village Forest Management License (IUPH-D), however if they want to use wood and environmental services, then the manager should submit IUPHHK-HA/HT and IUPJL. The implementation regulated through the PP No. 6 of 2007 jo PP 03/Menhut-II/2008 on Forest, Development and Utilization of Forest Management Plan.

This study will be discussed on how all the requirements in the assessment of sustainable forest management performance are required to support REDD Plus scheme. SMF performance appraisal standards set through Permenhut Number P.38/Menhut-II/2009 on Guidelines for Performance Assessment of Timber Legality Verification of SFM and where the

[3] Simon, H (2005) distinguish between the concept of sustainability of forest production and forest conservation or protected forests, i.e. on production forest termed as sustainable management of resources (SMR), whereas on conservation forest and protected forests with the term sustainable management of forest ecosystem (SMFE).

[4] In terms for enhancement carbon stocks on Reducing Emissions from Deforestation and Degradation Plus (REDD +) can be conducted through Sustainable Management of Forest (SMF), forest-based carbon (forest-based carbon), carbon sequestration (C02 sequestration), sinks / carbon stocks (carbon sinks / stock), eco-friendly products (green products).

BOX 5
Regulation of Ecosystem Restoration Outstanding Settled

Ecosystem restoration activities is essentially to build natural forest areas under production forests which have important ecosystem (flora, fauna and non-biological) to achieve balance in biodiversity and ecosystem of production forest. Sequence of activities similar to the existing activities under utilization of timber permit in natural forests. The difference is only in under the delay of moratorium where the forest for ecosystem restore, the timber may be harvested after reaching the equilibrium of ecosystems (e.g. 35 years). This condition is very different when viewed from the principle of sustainability. Natural forests for production purposes in principle adhered to the sustainable yield or resources (sustainable management of resources), while ecosystem restoration adhered to the ecosystem sustainability (sustainable management of ecosystem) that demands the principles and activities to achieve different goals.

Such conditions are shown by a company that has a license for utilization of forest-wood ecosystem restoration (IUPHHK-RE) in Jambi and East Kalimantan Province. Before the business permit issued, they are burdened with the obligation to pay dues equal to IUPHHKHA, while they have not earn anything in a short time. Fortunately they obtain grants from foreign donors which requires preservation of the forest with no logging. While the company also have not able to produce non-timber forest products. As a company that puts profits (profit orientation), then it should not rely on grant funds, but had to hardly think to try on producing forest products such as non-timber(such as rattan, gum, aloes, bird nest, plant medicines, and means to studybiodiversity, and ecotourism, etc.).

Furthermore, the sequence of the obligation to carry out forest management activities are also similar to ecosystem restoration IUPHHKHA making it difficult for the company because some of the different managing principles andpurposes. Therefore the provision to restructure the regulations on forest ecosystem restoration is to be addressed by involving the managers of ecosystem restoration, government and society. **First**, that ecosystem restoration is not the goal to produce timber and just profit-oriented business so the business license and the treatment will be different with IUPHHKHA. **Second**, the current regulations (PP. 3 / 2007 PP No.03/2008 jo and ministrial regulations) as the rules of procedure should be revised to incorporate thefundamental substantial changes, such as the rights and obligations of licenseholders. **Third**, also need to consider incentives to them because ecosystem restorationalso in order to carry out the obligation of governments to conserve and preserve the forests which nearly produce no measurable benefits material.

assessment guidelines are regulated by the Director General of CPC Number P.06/VI-Set/2009 and P.02 / VI-Set/2010.

According to the regulation, the assessment consists of aspects (1) the certainty of long-term forest management, (2) production, (3) social, (4) ecology (environment), and (5) the company's health. The regulation also provides (6) the legality of timber, where the entire production must be completed with the origin of forest products, volume, types, and the production target has been given by the government.

There are a few protruding things from these regulations, i.e.:

1. SFM assessments should be conducted by an independent third party and Independent Verification Assessment Institutions (LP and VI).
2. Permit holders who already have a certificate of SFM do not need to have a certificate of Timber Legality (LK).
3. LP and VI accredited by the National Accreditation Committee (KAN) i.e. a national accrediting agency that does not have its main office to the Ministry of Forestry.
4. Assessment of SFM or VLK an initial period held by the LP and VI on permit holders - based on assignment from Director General on behalf of the Minister and the financing become a burden of Ministry of Forestry. The financing of following SFM or VLK assessment become a burden of license holder or owner of rights.
5. Before carrying out field assessments the auditor should conduct a public consultation to the community, relevant agencies and partners regarding the performance appraisal plan holders concerned. The form of public consultation is conducted by announcing the plan. Assessment Performance of SFM which containing the name and address of LPPHPL, name and address of auditors, location, and time of assessment are loaded in Forestry Department website (www.dephut.go.id) and the mass media at the latest 7 (seven) calendar days, and held a meeting with the community at least 1 (once).
6. The results of the assessment and / or verification VI and LP are presented to the permit holder or rights of forest owner.
7. If there are objections from permit holders or rights of forest owner to the assessment and / or verification - can be submitted to the LP and VI no later than 10 working days from receipt of the assessment and verification, for that LP and VI has formed a team to resolve objections Ad-hoc.
8. If NGOs or civil society of forestry objected to the assessment results, the objection is submitted to the LP and VI at the latest 20 working days for completion.
9. If LP and VI cannot complete objections, forestry NGOs or civil society may submit an objection to KAN, further procedures can be completed there.
10. The results of settlement of VI and LP or KAN objections namely CAR submitted to the license holder or owner of rights (CAR = Corrective Action Request).

From the explanation above, performance appraisal mechanism of SFM has been basically ensure transparency and accountability. Even the civil society are given space to file their objection.

2.2.1.1. REDD Plus in Forest Management Aspects of Long-Term Certainty

Long-term forest management actually reflects the key requirements in the implementation of sustainable forest management. Indicators of long-term forest management assurance stated as follows:

a. Certainty of work area for the long-term management of IUPHHK obtained by basis of utilization permit or permission from the government forest management;

b. The existence of a forest management plan covering the entire period of exploitation, which is supposed to be a commitment IUPHHK to manage long-term sustainable forest.

These indicators are aligned with international agreements on the timeframe of achieving GHG emission reduction. Roadmap of REDD PLUS Indonesia stated that Indonesia is committed to reduce GHG emissions by 26% if there will be no international aid and reached 42% of BAU until 2030 if there will be no international aid. Especially for the forestry sector aims to reach 14% of the target of 26% without foreign aid, and the delete rest is divided into sectors outside of forestry. So, without any commitment of management unit to conduct long-term sustainable forest management, the target that has been announced by the government will not be achieved.

2.2.1.2. The REDD Plus in Production Aspect

In a utilization of timber that became the main priority is the aspect of production. The crucial indicators in the aspects of production to achieve the sustainability of forest production are:

a. The existence of human resources that support sustainable production forest management;
b. Conformity of management implementation with procedures of production of forests;
c. Realization of harvesting area and residual stand inventory in accordance established guidelines;
d. Arrangement of long-term work area in a sustainable forest management;
e. Implementation of silvicultural phases systems to ensure forest regeneration;
f. Availability and implementation of appropriate technology to run the SFM;
g. Realization of logging according to work plans of logging / harvesting / utilization in the working area;
h. Harvesting efficiency.

Sustainability of production indicates that the carbon stocks in forests under its management can still be maintained, even more expected to increase from year to year. This happened because the management of production forests is getting better and sustainable, with a greater increment of trees, so the stock of carbon stored on trees or vegetation in forests is increasing. The REDD Plus concept aligned with the concept of SMF, although there are degradation but the amount of volume of harvested wood will not exceed the total increment of trees according to the results of forest inventory and allowable cut that have been set by the government.

Figure 4 shows on how the curve of SMF occurs if there is logging (production) of wood. In the early stages of primary forest (virgin forest) are still parallel to the forest conservation according to the REDD Plus. But because the forest is a production forest that can be exploited through IUPHHK-HA/HT, then after the large tree[5] cut down (graph fell sharply) and will further grow back either on the residual stand and the parent tree or on young plants of the same type or other non-commercial and commercial (graph up again), and so on. If the

[5] According to TPTI system, in permanent production forest, the wood that can be harvested is 50 cm above of diameter , while the limited production forest timber may be harvested is a diameter of 60 cm and above. As for the concept TPTII (Silint) or TPTJ, the diameter of the timber may be harvested is a diameter of 40 cm and above.

number of commercial plants beneath it than it supposed to be, then what can be done is enriching plant at that location.

2.2.1.3. The REDD Plus in Social Aspects of Management

The concept of REDD Plus requires the availability of security guards (safeguards) to avoid conflicts between users of forest resources and leakage[6] associated with emission reduction efforts. This safeguard and minimization of leakage prioritize the role of communities in and around the forest to participate in securing to avoid further forests degradation, and deforestation even for the benefit of other sectors.

Social indicators of sustainable forest management standards that are important are:

a. The clarity of wide and limit with indigenous people area and / or local communities that have been approved by the parties;
b. The type and number of agreements involving indigenous peoples and local communities or the equality of co-management responsibilities;
c. The availability of the mechanism and implementation of fair benefits distribution between the parties;
d. Planning and implementation of forest management has considered the rights of indigenous peoples and local communities;
e. Increased participation and economic activities of indigenous peoples and forest based local community economic activity.

The indicators above reflect the convergence between management unit and the community in efforts to achieve SFM. Not different with the concept of the REDD Plus, this concept also stresses the importance of safeguards and the prevention of leakage. This indicates that efforts to increase carbon stocks for The REDD plus through SMF requires social role to participate and enjoy the success of GHG emission reduction. Benefits that can be accepted by society include no disturbance of planting periods, flooding, excessive runoff of sea water, increasing the degree of heat, and even health problems, and others.

2.2.1.4. The REDD Plus in Aspects of Environmental Management (Ecology)

The sustainable forest management is highly emphasizing ecology. Especially if the management unit want to enter the GHG emission reduction scheme in the management of production forests. Key indicators that must be considered:

a. The existence, stability, and the condition of protected area in each forest type;
b. Protection and safeguarding of forests that cover security of interference, which includes forest fires, illegal logging, illegal grazing, encroachment, poaching, and disease pests both preemptive, preventive and repressive;
c. For the implementation of forests protection must be supported by implementing a work unit, which consists of quality procedures, infrastructure, human resources and adequate funding;
d. Management and monitoring of impacts on soil and water due to the utilization forests;

[6] Leakages actually depend on the unit development of The REDD meant. If the unit is a project of the leakages will occurs. However, if the unit is the national, the leakages in a building footprint will be offset by the carbon stock in the other tread.

e. Identification on species of flora and fauna that protected and / or rare (endangered), rare, endangered (threatened) and endemic.

The indicators became very crucial in sustainable forest management especially when the permit holder wanted its forest area proposes IUPJL, particularly storage and carbon sequestration in The REDD Plus scheme. Ecological aspects with indicators above is highly relevant to the concept of the REDD plus scheme.

2.2.1.5. The REDD Plus in Corporate Health Aspects

These aspects are emphasizing the accumulation of capital that will be invested back into the forest and its business in the long run. Related to this, economic incentives and other incentives are also proving that can improve the health of the company. This aspect became crucial when the company will reinvest into the production forests-related mitigation and adaptation the REDD Plus reserves to balance the carbon (carbon sinks) or net carbon emission (NCE).

Key indicators of sustainable forest management particularly about the health of the company are:

a. Company and / or a holding company with a good level of health of the financial indicators (liquidity, solvency and profitability);

b. Level of investment, adequate re-investment and needs in forest management (natural and plant), administration, research and development and capacity building of human resources.

Company's health became a benchmark of success of the business capital accumulation. Declining corporate profits could be the cause of capital collapse that will be used for reinvesting the forests. The decline in financial performance of a company can also be caused by the high economic cost (transaction cost) or illegal fees, the transportation distance of wood highly far, the cost of conflict resolution, and others. Such conditions and situation will became complicated when these costs are not recorded by company. Based on the results, it will be more difficult for the carbon services company to fulfill with the REDD Plus scheme that lead to additionality.

2.2.1.6. The REDD Plus in Timber Legality Aspects

Context of the timber legality highly determined by good forest planning tools in the business work plan (RKU), including the legality of licensing its annual work plan (CTR), that in accordance with block logging / cutting swath and distribution of timber according with administration of timber (TUK). Timber legality highly related to the efforts to eradicate illegal logging in REDD Plus. The legal and appropriate timber production according with the plan will help ensure the preservation of forests, inappropriate production will result in the decline of the existence of forests as sinks / storage of carbon. Illegal logging is an act of degradation that not well planned so it threatens the forest sustainability.

Legality of timber is the demands of the world about the importance of sustainable forest management and eco-friendly products (green products). Illegal logging is very detrimental to the country from the side of revenue and the existence forests in terms of the potential decline of forests and environmental degradation, as well as companies that threatened are not able to manage in the long run sustainably. Prevention efforts are the concrete actions of the the REDD Plus scheme.

Principally, the legality of timber is to determine the origin of timber, include clearly permissions (IUPHHK) and still valid, plan the work effort (RKU) and annual work plans (RKT), the origin of block / cutting swath can be tracked by the method of 'Chain of Custody' (CoC) or chain of custody until after the cut stump. There should be a companion document of timber distribution such as the ratification document Report of Forest Products (LHP), Invoice Round Wood Transport (FA-KB), so the wood was declared valid but within the applicable legal provisions, stump timber tracking are not required. In the prevailing regulations, the document is considered as verified if its validity can be proven only one step back (one step backward only). This means that if an industry has been able to show SKSHH, then SKSHH can be used as proof of timber validity without checking whether the correct and legitimate SKSHH substantially.

Timber legality in REDD Plus is a form of sustainable management practices in the forests by the holders of IUPHHK, both in plantations and natural forests. Thus, how many tons of potential carbon stored can be determined by calculating the volume of timber were transported (equality with tonnage of carbon), the level of emissions due to damage to the block / plot logging, and others according with scheme being used.

2.2.2. REDD Plus and Forest Governance

As mandated in Regulation No. 6 of 2007 jo PP No. 3 of 2008, management unit is a business license holders in forestry and the establishment of KPH is the basis for management of forest areas. KPH specifically intended to managing the establishment of forestry areas that more integrated in planning, implementing, organizing, and supervising, both technically substance and territorially (Permenhut P.6/Menhut-II/2009 on the Establishment of Regional KPH) as well as organizational and administrative work (Permendagri Number 61 of 2010, Dated December 23, 2010 Regarding Guidelines for Organization and Administration of Forest Management Unit Protection and Production Forest Management Unit in the Region.

Institutional relationship between KPH and existing agencies, especially in areas have not been clear. Similarly, an understanding of the KPH itself is still confusing, both governance, labor relations duties and functions. This institutions are very eagerly awaited the realization of its formation and organization to be functioned.

With the MRV requirements in the implementation of the REDD Plus will indirectly improve the governance forests management units that wish to participate in REDD Plus. From the REDD Plus incentives will be encouraged the UM to take measurements of SDH potential under management (measurable), always report the results of the implementation of activities (reportable) and ready to be verified by any party (verifiable). This provision suits well with the performance appraisal mechanism of SFM that developed in Permenhut P.38/2009, P.06/2009 and P.02/2010 Perdirjen CPC as dikemukan in advance.

2.2.2.1. Timber Forest Product Utilization License (TFPUL)

TPFUL already began since the 1970s with the term of forest concession (HPH) primarily in timber production. The highest number of concessions was in 1980 which is more than 500 units of concession with an area of 60 million hectares. During its development, concessions renamed IUPHHK since the enactment of Law No. 41 of 1999. Until now, the number of holders of IUPHHK for natural forests (HA) which is declining to only about 256 units IUPHHKHA are active in 2010, contrary to IUPHHK-HTI increased from only a dozen units to 215 units (area 9.4 million hectares). Since 2008 until 2010 HTR newly realized covering an area of 0.63 million hectares that managed more of 63 000 heads of households (HH).

The decrease in IUPHHKHA caused by (1) not feasible to manage, (2) forest area are converted, (3) area converted to plantations, (4) expansion of the city, and others. Many of the IUPHHK revoked or permit holder leaves their area with appalling conditions so the forests became inproper. If converted into HTI or HTR it would be better because there are the managers, but if left to languish without a host, then the area will be encroached by the community, prone to wildfires, or used by other parties without permission. Such condition needs a serious attention by the government as the license provider. Become a very elegant and useful if the damaged forest area or no man's land is immediately allocated for managed IUPJL or IUPHHK-HTI, HTR, and other forestry business.

HTI Management Unit is currently growing rapidly with total area more than 9 million hectares and will be continue to grow by 20 million hectares in 2030 (Road-Map Ministry of Forestry, 2011). HTR has not shown a significant development because until now, despite being earmarked by the Ministry of Forestry 1 million hectares, but only about 100,000 hectares of IUPHHK-HTR that has been published. As well as HKm and forest village, both of them have not been significant. The HR has shown a very real effect, especially in Java, which reached approximately 2.8 million hectares production of 6 million m^3 timber per year until now. HR will continue to expand along with the proliferation of timber processing industry. In addition, with an area of 1.8 million hectares of production Perhutani[7] will have a potential ready cut timber about 950,000m^3, and the potential of stands around 60 million m^3, including jungle timber species (non-identity).

Table 1. Target, allocation, verification and license issuance of Community Based Forestry up to 2010

Community Based Forestry Program	Target up to 2014 (Ha)	Allocation (Ha)	Verification (Ha)	License Issuance by Ministry of Forestry (Ha)	License Issuance by Governor/ Head of District (Ha)
Community Forestry (HKm)	2.000.000	400.000	203.573	80.181	**30.485,55**
Community Forest Plantation (HTR)*	5.400.000	631.628			**90.414,89**
Forest Village (HD)	500.000	179.187	144.730	13.351	**10.310,00**
Total	**7.900.000**	**1.210.815**		**93.532**	**120.910,44**

** HTR yang dikelola oleh Koperasi, KTH, dan individu (HTR pola kemitraan tidak termasuk).*

Sumber: Sub-Direktorat HKm, HD dan HTR Kemenhut RI (Desember 2010)

All stakeholders IUPHH mentioned above, besides are trying to produce timber, can also apply purpose the IUPJL for GHG emission reduction through carbon sequestration and storage. The mechanism could follow Permenhut P.36/2009 Concerning Licensing Procedures for Business of Carbon Sequestration and / or Carbon Storage in Forest Production and Protection Forests. Schemes which already available in Indonesia are include (1) A / R CDM, (2) Voluntary Carbon Market (VCM), with necessary modification, and (3) the REDD Plus. This is a good opportunity and will gain an appreciation of national and international efforts to reduce global GHG emissions. Additional funding will be obtained through the domestic market and abroad.

[7] Perhutani as a forest manager in Java mastering an area of 2.5 million hectares, consists of 1.8 million hectares of production which managed sustainably, and the remaining 0.7 million hectares of protected forests and managed for conservation purpose the including tourism and protection of water resources.

2.2.2.2. Forest Management Unit (FMU)

Among many problems that faced by the forestry sector in Indonesia, there are high deforestation and degradation; encroachment forest areas that performed both by the community around the forest as well as by companies in the area of plantations that have a right of enterprises in the surrounding forests; extent of land -critical lands that need to be rehabilitated; and handling of SDH managing problems that have not been comprehensively to do. Problems are very likely to happen, because although the rights of forest tenure guaranteed by the state[8] but in fact it is susceptible to become an open access resources, where the parties which willing to take risks will be competing to access. As a result the SDH (forest resources) will be depleted and destroyed without any party who are willing to be responsible for damage or deterioration functions of the SDH.

To suppress the negative impact, it is necessary to bring the manager in charge at site level. Many options how to bring the managers at the site level , but based on the rules and regulations the development of Forest Management Unit (FMU) is the most likely choice (the most probable alternative). As it is known that REDD PLUS is a funding mechanism to support implementation of the terrestrial carbon environmental services activities through international negotiations with the aim to reduce emissions from deforestation and degradation through a series of sustainable forest management and enhancement of forest carbon stocks in developing countries. With this scheme, basically the scope of activities that can be developed include lower levels of deforestation and degradation; increase the reserves of carbon stocks through improved land cover, and maintaining existing carbon stocks through sustainable forest management. These activities will not be able to run if there is no responsible for the successful implementation which is the planning including the negotiations framework and financing, implementation, assurance of security and sustainability of investment, suppress the negative impact of forest tenure by the State that appropriate to its characteristics are prone to be an open access resources, prevention of leaks (leakages) on The REDD PLUS implementation, performance measurement and reporting of emissions reduction and increased carbon stocks, following up on the weaknesses of implementation, cost management and distribution of benefits at the site level. Therefore, presenting a manager at the site that can carry out these activities is needed. Within the framework of existing regulations and laws, the manager at the site can be performed by KPH, mainly to The REDD PLUS implementation which based on forest areas.

Forest Management Unit (KPH), is an area of forest management according to its main function and its allocation, which can be managed efficiently and sustainably (PP No.6/2007 jo PP. 3 / 2008). KPH itself actually has been known since the issuance of Law No. 41/1999 on Forestry, later reaffirmed in PP. 44 Year 2004 on Forestry Planning and received strong urge through PP. 6 Year 2007 jo PP. 3 Year 2008 regarding Forest Management, Forest Management Planning, and Forest Utilization. But long before that forests managing at Java by Perum Perhutani has already know the term of KPH, although a different extension of which is Kesatuan Pemangkuan Hutan.

[8] Act No. 41 Year 1999 on Forestry states that "All forests within the territory of the Republic of Indonesia , including natural resources contained therein is controlled by the State for the greatest prosperity of the people"

The urgency of KPH development (especially outside Java) is driven by the fact that:

1. Forest areas that controlled by the state based on Act requires an intensive asset of management at site level and the government representatives at the site.
2. Management (especially utilization of SDH) which entrusted to the private sector through the licensing mechanism for forest (IUPHH) have limited time and if it is over the region becomes unmanage. Besides nature of the transfer of rights granted to holders of the license is suspended (as the lease), is also needed close monitoring from government over the behavior of permit holders.
3. Many forestry investments such as the implementation of rehabilitation (Gerhan) which has already implemented in the field often fail due to lack on investment managers. Implementers project oriented to investment only, without thinking about maintenance on planted trees.
4. Programs for providing preferential access to the public plays an active role in managing such as Community-based Plantation Forest (HTR), Village and Community Forestry Forest slowly realized, due to the absence of a companion at the implementation level.

Considering such a strategic position, the KPH need to be given duties and functions which quite broad. Duties and functions include (PP. 6 / 2007 jo PP. 3 / 2008):

1. Conducting forest management that includes Forest Arrangement and forest management plan; forest use; forest use; forest rehabilitation and reclamation, and forest protection and nature conservation.
2. Describe the national forestry policy, provincial and district / city field of forestry to be implemented at site level.
3. Implement forest management activities in the region starting from planning, organizing, implementing and monitoring and control.
4. Implement monitoring and assessment of implementation forest management activities on its territory.
5. Open the investment opportunities in order to support the achievement of forest management objectives.

It appears that with the adjustment of duties and functions will be aligned with the characteristics of The REDD PLUS framework. The adjustment is especially needed in terms of performance measurement and reporting of emissions reduction and an increase in carbon stocks.

Administratively, the organization and KPH staffing are under the coaching area (Governor, Regent / Mayor) in accordance with the authority and the boundaries of its territory. KPH is divided into production KPH (KPHP), Protection (KPHL), and Conservation (KPHK), depending on dominant functions. Thereby, there can be protected forests and / or conservation in KPHP. Alternatively, there could be production forests and / or protected forest in the KPHK, and there can be production forests and conservation areas in the KPHL.

There can be 4 -10 units of KPH (P, L, or K) in one district, and there can be 30 – 40 KPH units in one province. Therefore, the coordinator at the provincial level is needed so that in every province has a policy area, and a pattern that is typical of forest management in their area. At the provincial level, the patterns of forest management plan (RPPH) on Cross District KPH defined a strategy to manage of forest according to characteristic Watershed (DAS) in two

or more districts. While RPPH at the district level, the strategy formulated according to DAS or KPH which located in the district.

RPPH mentioned above, in addition to containing substances on utilization of timber production of forest, as well as use of area on each forest function. Management of planning system these intended to be more integrated and reflect the characteristics of each area. VCM, or the REDD PLUS). KPH can serve to make the planning of forest management patterns in KPH it, there will be a management unit (IUPHHKHA, HTI, HTR, and HKm) in it. There is also RPPH to manage HK and HL, except if these specifically for KPH at the provincial or even national. Structure and the hierarchy will be discussed in another section by consultants ITTO PD 007/09 Rev.2 (F), specifically regarding the increase in carbon stocks to The REDD PLUS through SMF.

Therefore, if KPH immediately is formed, then the first step that must be done (1) zoning the KPH, (2) the establishment of the organization and charging officers, (3) of forest inventory in the region, and (4) develop RPPH. RPPH has the same meaning with the (RKU) which usually arranged by the company (management unit). RPPH prepared for a period of 20 years made by officials at the KPH. Furthermore, each coordinated by the Head of the KPH the KPH based at the provincial authorities include filed (RKU) to get the endorsement of Governor. After the RPPH prepared and approved by Governor, then each of the KPH formulating the Work Plan and Budget within each year as annual action plans.

Functional relationship with the agency in charge of forestry at the provincial and district / city is set as follows:

a. Provincial forestry department and district / city serves as the administrator of the area associated with the affairs of governance (governance in forestry administration, supervision, control, and licensing forestry);

b. KPH (can be in the Regional Technical Implementation Unit) serves as unit manager which is planning, organizing, and implementing forest development units, including the administration timber and of forest sustainability appraisal as an institution;

c. Unit manager (Corporate) serves as the executor of utilization of forest products, and / or forest area.

The function of Forest Management Agency (or “KPH”) is managing zones associated with managed zone: where FMA-P manages protection forest, FMA-C manages forest conservation, and FMA-Pd manages production forest. The principle of FMA was based on dominating zone, for example: one FMA-Pd could also manage protection forest and or conservation forest, but not dominating in one zone, and similar to FMA-P and FMA-C was possible production forest management. FMA could also conduct official tasks, likes Land Rehabilitation Movement, nursery of people forest, and other tasks. Where as management unit (forest utilization license in wood-product and environmental services) would be executed by corporate function for utilizing forest yield and/or forest zone in a certain business fit to own license. On the other hand, mechanism of forest service that executing forest region, FMA, and forest management unit would be discussed by other national consultant of ITTO PD-RED 007/09 Rev. 2 (F) project, especially related to increasing carbon stock for REDD+ trough Sustainable Forest Management.

2.2.2.3. The REDD Plus Task Force

REDD Plus Task Force is an ad-hoc organization. Facing the unclear legal framework (legislation) on the reduction of GHG emissions in Indonesia , the Task Force is assigned to

become the driving force that accelerating the implementation of REDD plus which has agreed upon the world in efforts to reduce emissions from deforestation and of forest degradation, and storage and carbon sequestration. Recently, the Task Force is working on Presidential Regulation concerning the moratorium utilization of of primary of forest and peat. Expected to be obtained an alignment with the Ministry of Forestry programs related to the utilization of primary of forest and peat, both to objectives timber production and non-timber products (including to environmental services: ecotourism, fresh air, and carbon trading to of REDD through SMF).

The Task Force movement to draw up Presidential Regulation would not be contrary to Law no. 41 of 1999 on Forestry and Law no. 26 of 2007 on Spatial Planning. Therefore, good coordination is needed between the Ministry of Forestry and The Task Force in terms of addressing the moratorium on utilization of primary of forest and peat as a "message" ban (suspend / moratorium) as outlined in the LoI Indonesia and Norway.

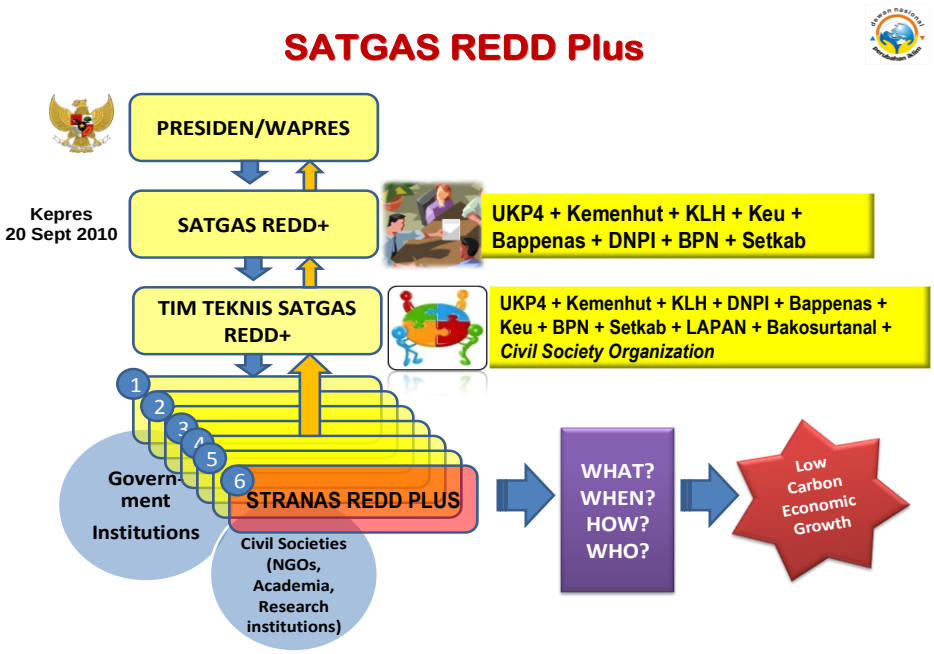


Figure 6. REDD Plus Task Force (largely ad-hoc organization on UKP4 to REDD Plus)

The pattern of labor relations between Ministry Forestry and The Task Force related to REDD plus can be followed as Figure 6 above. In the context of REDD Plus, the President / Vice President is a person in charge of GHG emission reduction in Indonesia. In the REDD Plus Task Force, the President commissioned the Task Force to assist the President to coordinate with related government agencies, which is include Kemenhut, Environment, Finance, Bappenas, DNPI and Setkab. REDD Plus Task Force is a special assignment which should accelerate implementation REDD Plus in Indonesia. REDD plus Task Force is responsible to the President / Vice President in carrying out their duties.

Furthermore, after REDD Plus Task Force ended, the structural assignments will be returned to the portfolio of each institution / Ministry according to the function and authority. Tasks related to REDD Plus Institutional implementation will be determined based on presidential decree before the end of 2012. Ratification of the UNFCCC statute No. 6 of 1994 on Ratification of the UN Framework Convention on Climate Change gives the signal the need

for institutional care of the impact of climate change in Indonesia. Therefore, the existence of REDD Plus Task Force is currently a very strategic in compiling various things related to REDD Plus such as: (1) formulate national policies and strategies for REDD PLUS, (2) formed an organization called REDD Plus (3) establish institutions Measurement, Reporting, and verification (MRV), (4) establish a special institution REDD Plus, (5) perform the role of the multi-party process, and (6) determine the pilot provinces for the implementation of REDD Plus. To that end, the completion of the tasks carried out by the Task Force REDD Plus must be completed so that by 2012 Indonesia has already prepared towards implementation REDD Plus in the forests of Indonesia.

3

IMPACT OF POLICY AND REGULATION RELATED TO IMPLEMENTATION OF REDD+ AND SUSTAINABLE FOREST MANAGEMENT

Many studies conducted to rules and regulations in Indonesia related to the implementation sustainable forest management (sustainable management of forests, SFM) either by ITTO in 2006 and the Ministry of Forestry itself. There are some policies mentioned directly or indirectly due to implementation of SFM at natural forest nor plantation (chapter 2).

In the context of increasing carbon stocks through carbon absorption and storage, as well as the reduction of greenhouse gas emissions (GHG) emissions from deforestation and forest degradation (REDD Plus), implementation of sustainable forest management will be need a lot of adjustments, just in case if IUPHHK holders want to run the carbon-based forest management schemes. The following are some policies and regulations on forestry which able to affect the implementation of sustainable forest management, especially policies (P6) that allegedly have a direct impact on REDD Plus.

3.1. Spatial Planning and Determination of Spatial

Act No. 26 of 2007 on Spatial Planning (PR) and Government Regulation (PP) No. 26 Year 2008 regards to National Spatial Plan (Spatial-N) is the legal basis for the use or utilization of space that must be obeyed by natural resources users. Conservation and protected cultivation functions of policies itself was clearly stated. PP as a derivative rule from statute, regulate the criteria and requirements that must be accomplished to provide protected and cultivation functions of an area. Criteria for protection forest area are adopting statute and regulations on forestry (Act No. 41 of 1999 and Government Regulation No. 44 on Forest Planning).

Last four years, local governments (provincial and district / city) are changing the provincial spatial plan (RTRW-P). Its impact was felt by Forestry, especially to forest area which has already burdened by rights because it tends to decrease the total area and IUPHHK work area for both natural forest and plantations. Although in the PR and RTRW-N stated that forest area requires 30% at minimum of the watersheds (DAS) and / or islands, but it does not mean that minimum area could be used or taken. While outside of java, the forest area is still above 60 percent of average. Local governments tend to expand the cultivation of non-forest area thus reducing the forest area that currently available. The table in the Figure 7 describes the vast area of forest cover and Indonesia (Ministry Forestry, 2011).

Indonesia forest area reached 136.09 million hectares (Directorate General of Planning, Ministry Forestry, 2008), consisting of 15% converted forest (HK), 22% protected forest (HL), 46% of production forest (HP) and 17% forest that can be converted (HPK). Based on 2007 satellite data, forest area which is still wooded is about 85.9 million hectares and which already un-wooded approximately 39.1 million hectares. HPK broad reach 22.7 million hectares, and only 10.7 million hectares which still wooded.

Fungsi	Luas (Ha)
Hutan Konservasi	23.523.472
Hutan Lindung	31.595.082
Hutan Produksi	36.736.370
Hutan Produksi Terbatas	22.343.819
Hutan Produksi yang dapat Dikonversi	22.744.932
Total	136.943.675

Penutupan Lahan	Luas (Ha)
Hutan Primer	45.574.936
Hutan Sekunder	43.304.426
Hutan Tanaman	3.603.728
Non Hutan	44.460.584
Total	136.943.675

Source: Ministry of Forestry, 2005

Figure 7. Extent of area and the condition of Indonesian forest cover, 2005

Ministry of forestry aims to projected the function area widespreadly by the 2030 for to conservation forest, protection forests, production forests and rationalization of area that is directed to non-forestry. Table 2 describes the effective utilization area by 2030. The effective area in 2030 is 83 percent of the currently total forest area. Protected forest (HL) underwent widespread changes from 31.6 million hectares to 29.9 million hectares, while production forest (HP) from 59.0 million hectares to 57.8 million hectares. Production forest area that can be converted (HPK) is only 2.7 million hectares, while the rationalization of the area that will be used for non-forest area of 23.1 million hectares.

Forests that are still good on forest that can be converted (HPK) will be returned by the function into production forest. While conservation forest areas (HK) are maintained optimally. Alteration in HL and HP area become done for land conflict resolution and directed to non-productive area (the study of spatial and partial). Limited production forest was reduced from 22.3 million hectares to 18.0 million hectares, but it turned into forest production (fixed) which initially is a 36.7 million hectares to 39.8 million hectares.

It seems that ministry did an effort to retain the extent of forest area, particularly forest conservation and production forest. But it is certainly not an easy job, even it is very difficult and need a lot of challenges which enormous. The impact is to the areas that has already burdened by rights permit utilization of timber on natural forest and plantations. Further studies of this natural forest mentioned that it has already degraded since the 1980's and currently there is no forest management that able to retained as production forest , but only changed from natural forest become managed as plantations or were retained as natural forest that originally with just a single silvicultural system become multisystem silviculture.

Table 2. Effective Area of directives forest area until 2030

Luas Efektif Arahan Pemanfaatan s/d Tahun 2030

ARAHAN/RENCANA	FUNGSI KAWASAN					Rasionalisasi Kawasan
	HK	HL	HUTAN PRODUKSI			
			TETAP (HP)	TERBATAS (HPT)	KONVERSI (HPK)	
Kawasan Konservasi	20.292.635	-	-	-	-	
Kawasan Hutan Alam dan Lahan Gambut (Karbon Stok)	-	23.077.611	2.267.439	634.732	2.678.180	
Kawasan untuk Rehabilitasi	3.230.837	5.116.544	3.795.492	2.088.677	-	
Kawasan Pengusahaan Hutan Skala Besar	-	-	30.354.075	14.204.083	-	
Kawasan Pengusahaan Hutan Skala Kecil (Masyarakat)	-	1.697.433	3.350.296	1.074.509	-	
Kawasan untuk Non Kehutanan	-	-	-	-	-	23.081.132
Jumlah	23.523.472	29.891.588	39.767.302	18.002.002	2.678.180	
Luas Efektif Kawasan Hutan	113.862.544 (83% dari luas total kawasan saat ini)					

- Kawasan hutan yang masih baik di dalam HPK dikembalikan fungsinya menjadi HP
- Kawasan konservasi dipertahankan semaksimal mungkin
- Perubahan peruntukan di dalam kawasan HL dan HP dilakukan untuk resolusi konflik lahan dan diarahkan pada areal non produktif (review tata ruang dan parsial)

Ministry of Forestry Road Map 2011 projecting the natural forest to be managed only about 25.0 million hectares, while the Forest Crops (Forest Estates, Community-based Plantation Forest, Village Forest and Community Forest) reached about 23.5 million hectares. Perhaps these projections are realistic, with only about 48.5 million hectares of production forests that can be managed through IUPHHK. In line with the results of studies Bappenas 2010, that production forests for the timber forest product utilization is about 48 million hectares.

Things that need to be done related to the arrangement and use of space, Ministry of Forestry 2011 has launched a REDD plus strategy as follows:

a. Reinforcement the authority and functions of the National Coordinating Agency for Spatial Planning (BKTRN) through revision of Presidential Decree No. 4 of 2009 [9];

b. Reviewing the license, policies, and regulations by referring to principles that had been developed previously (climate friendly legal framework, CFLF), as the device reviewers to the conflict use the space primarily for the benefit of forestry, plantation, mining, agriculture, and settlements;

c. Alignment results from study of previous policies and regulations, the planning and regional classifications associated with emission reduction targets[10];

[9] Functionality reinforcement is intended to synchronizing the data and information that necessary to the determination of space and its use and forest land-based development implementation based on carrying capacity, including legal with biophysical, ecological, economic and socio-cultural

d. Legal action (administrative, civil, and criminal) relating to examination results of licensing, which obviously violated the law according with the provisions of sanctions that have been regulated through Law No. 26 of 2007 on Spatial Planning, Act No. 31 of 1999 regarding Criminal Acts of Corruption, Law No. 32 of 2009 on the Protection and management of Environmental and by other regulations, related to land management and space;

e. The Acceleration of establishment and operation of forest managers in the site (Forest Management Unit, KPH) as the executor of forest resource managers, and establishing legal and regulations, framework in transition from before the KPH to KPH operational period, mainly due to the presence of licensing.

With policies and settings mentioned above it is expected that settlement and the use of space conflict does not need to be prolonged without a definite settlement. Compliance and obedience to the commitments of political will on the arrangement of space becomes a firm base so that no more violations of law related to the use of space and land. BKPRN becomes very vital role to synchronize the data and information that necessary to the determination of space and its use based on the carrying capacity, including legal with, biophysical, ecological, economic, and socio-cultural. Furthermore, the role of KPH is very awaited and become key that could open up the hierarchy congestion between the central and regional management of the forest and land use.

3.2. Decentralization to the Local Authority

In the last decade there is more pressure due to forest management land-use because of the insistence of needs to the construction and development by other sectors (plantations, mining, infrastructure development and regional divisions) and society (tenure). These pressures that occurred are affecting the efforts to achieving PHAPL.

The incoherently between the Act No.41 of 1999 concerning forestry, Law no. 32 of 2004 on Regional Autonomy, Law no. 26 of 2007 regarding Spatial Planning and the Special Autonomy Law in Aceh and Papua, results in overlaps and indecision authority and uncertainty area. Regulations that became derivatives from the Act include PP. 6 of 2007 jo. PP. 3 In 2008, PP. 38 In 2007, PP. 26 in 2008 and PP. 2 in 2008. In addition, the implementation of related regulations, is including the Regional Regulation (Perda), mainly Qanun Aceh Province No.14 of 2002 Article 3.

Decentralization in reality does not change the principle position of the entrepreneur. The difference lies in the government actors, several forest management authority initially was the duty of central government, then handed over to local governments. Mardipriyono (2004) reported that a total of 39 forestry rules turned out to overlap between the central and regional authorities. Furthermore, excessive government oversight resulted in high economic costs.

Law Number 32 Year 2004 on Regional Autonomy gives broad authority to the Governor and Regent / Mayor in particular regarding utilization of space in its territory or in the territory. The authority includes licensing to certain business sectors, such as plantations and mines often been in conflict with the the forestry sector. Forest area, which is in charge of more than 60 percent of the total land area, is often a struggle for land between the forestry

[10] Alignment the results is intended to match of achieving emission reduction targets with efforts to reduce emissions with emission reduction targets become realistic measurable

sector (Ministry of Forestry) and local governments. Licensing by the governor and / or a regent for the field of business outside of forestry (e.g. plantation and mining) are infrequently overlap with the area that has already burdened by rights forest. These conditions resulting in fewer forestry business opportunities to manage their sustainable working area because of driven by oil and mining operations in forest areas under its management, that in practice plantation employers and / or mines often use society to deal with IUPHHK. Meanwhile, local governments that should be obliged to mediate conflict resolution is powerless.

Law enforcement in case of violations of licensing errors by the local government felt not running as expected. Permit holders of forest products often become the party who 'sacrificed' when there are forest land use conflicts. This accusation was motivated by sentiments of some 'local authorities' against small forestry contribution to regional development. Meaning contribution is often mischaracterized by some local officials who want a direct contribution to their group. These conditions result in debilitating 'bargaining position' of IUPHHK against the certainty of forest management in the region.

Even though there has been a Government Regulation Number 10 Year 2010 on Procedures and Functions Appropriation Changes in Forest Areas and Government Regulation No. 24 of 2010 on the Use of Forest Area, but obviously it is difficult to control both of this at field orientation. Local governments often give priority to their interests by ignoring the forest conditions that can cause environmental damage. Changes in the function of protected forests or production forest into non-forest tend to increase as a result of RTRW-P revision. If such changes occurs in the production of forest -based carbon that is being managed, it will cause leaks that could reduce revenue of carbon that has been agreed with the other parties. From the side of SMF it would also disrupt the planning and overall management forest concessions, which in turn have a negative impact of IUPHHK and / or environmental services (IUPJL) who manages forest to take advantage of environmental services (carbon).

Recently, Ministry of Forestry issued a Regulations of the Minister of Forestry (Permenhut) Number P.14/Menhut-II/2011 on Timber Utilization Permit (IPK) and Permenhut Number P.18/Menhut-II/2011 on Guidelines for Use of Forest Area Lending. Both of these ministerial regulations can directly effect the planning and overall management forest concessions. Several items in the regulations negate the coordinating obligation between the borrowers -use companies with the forest utilization permit holders. The further impact is the acquisition of a certificate on sustainable management forest under its management postponed.

Some cases happens with the implementation of carbon trading in some areas, demonstrate the strong role of local governments in entering the carbon trading scheme. For example Province Nanggroe Aceh Darussalam (NAD) and Papua (and West Papua) in sub-national level they had already cooperating with the foreign juridical-formal the legal provisions on REDD overall has not been applied. Aceh Province has established that no more Timber Forest Product Utilization through IUPHHK in the province, except for a moratorium on forest and ecosystem restoration. While in the province of Papua (and West-Papua) take the initiative in cooperating with foreign countries in reduced emissions from deforestation and forest degradation (REDD Plus) projects on forest production and forest conservation. Both provinces are constrained by the implementation of REDD Plus due to funding and mechanisms of funding incentive has not been clearly regulated by the Government. This condition is extremely worrying the sustainability of forests due to prone to illegal logging as a result of no forest managers.

3.3. Declining SFM Performance

Implementing regulations issued by the Minister of Forestry directly impact the achievement of PHAPL, especially on efficiency and effectiveness of regulations aspect itself, include: Permenhut No. P.43/Menhut-II/2008 about Borrow Use Area; P.6/Menhut-II/2007 about the Work Plan and Annual Work Plan IUPHHK In Natural Forest and Ecosystem Restoration In Natural Forests in Production Forest; and P.55/Menhut -II/2006 who amended by 63/Menhut-II/2006 about PUHH.

The basic of the implementation of scheme for activities sequestration / storage of carbon and REDD Plus guided Permenhut P.36/Menhut-II/2009 on Absorption / Storage Carbon, P.68/Menhut-II/2008 about the Demonstration Activity, and P.30/Menhut-II / 2009 on Procedures for REDD. Review of the three regulations will be discussed in Chapter IV-related substance and some alternative solutions.

It is very reasonable if the reduction in the performance of sustainable production forest management (SFM) by mainly consequence of low commitment from the holders of IUPHHK about sustainability[11].

Furthermore, lack of human resources, infrastructure companies, and imposition of sanctions that are less strict adds SFM poor performance. An internal factor such as company's financial health is difficult to prove and is controlled by the Government due to finances is a Corporate domain (private). As for the sustainability of protected forests and forest conservation has been no standardized assessment. The government claimed if the protected forests and conservation forest are well preserved it is automatically realized the sustainability of forests.

However, if the scheme sequestration / storage of carbon and REDD Plus is applied, then that might can be obtain the fastest and most secure financial incentives at protected forest and forest conservation. Both these forest, including the peat lands is an area that extremely effective as a store of carbon (carbon stock). While on primary forest and peat lands management currently be 'the arena' of implementation of international commitments such as Norwegian in reducing emissions from deforestation and forest degradation (LoI Indonesian-Nowegia). Support for the temporary suspension (suspend) to the provision of new licenses at the management of primary forest and peat lands in the form of Presidential Instruction No. 10 of 2011, dated May 20, 2011. On the other hand, schemes for carbon sequestration (carbon sequestration) can be done with the reforestation at land with the forest and vegetation cover which lacking and very less (critical), including the activities of forest plantations (Forest Estates,Community-based Plantation Forest, Community Forestry, Forest Village , and restoration of forest planting at forest). However, the development of HTR, HKm, and Forest Village which potentially can be conditioned as an effort to improve land cover with trees, collided with the various issues, especially the complicated permitting process which can not

[11] Contractual arrangement between the Government and the holder of IUPHHKHA which lease based was not capable of directing the behavior of the holder of a license to behave sustainably, because the cost / burden of the cost on failure to manage forests sustainably can be inflicted to other parties (in this case the government / public). Instead the benefits of sustainable forest management can not be fully felt by permit holders. From the an economic standpoint, the internalization of externalities on contractual arrangement IUPHHK can not be fully realized. In the such circumstances, market mechanisms would not be effective. In exchange a strict monitoring mechanism should can be conducted. But unfortunately, the government did not have enough infrastructure and adequate funding for the implementation of a strict supervision, in addition the good forestry governance is still stalled in the discourse.

be implemented by farmers. While the assistance that can cope with the complexity of licensing problems, so far not been implemented.

PHPL is already accommodating all three aspects of forest management that can be managed sustainably, that aspects of production, social and environmental. Therefore, REDD Plus scheme, especially when applied to production forests which sustainably managed already capable to obtain financing incentives. Only the buyer from the other countries (e.g. Annex-1) who wish to take part in the reduction of GHG emissions currently not interested in the forest area managed by IUPHHK, even if managed sustainably that have earned certificates PHPL, both mandatory or voluntary. Not only buyers who has not been interested, but also the manager of IUPHHK their own because based on calculations, balance and benefits from the REDD Plus can only be obtained with the range of U.S. $ 25 per tones CO2e. Therefore, it is difficult to influence the holders of IUPHHK that utilizes the natural forests wood to propose REDD Plus scheme for carbon services if the value is below U.S. $ 25 per tones CO2e.

PHPL activities at IUPHHK that can be submitted to obtain REDD Plus scheme include (a) delays moratorium, (b) forests planting through enrichment, vacant land, or pathway planting, (c) the prevention of illegal logging, (d) prevention of encroachment and forests fires, (e) of implementation of reduced impact logging (RIL), and (f) restoration of ecosystems. The activity so far is extremely difficult for forest managers. It is characterized with the decreasing of IUPHHK holders of natural forests from year to year.

In addition, from the ± 300 units IUPHHKHA company that has a mandatory certificate of PHPL as many as 68 units, consists of 21 units predicated as very good and good, and 47 units are predicated as average. Meanwhile IUPHHKHA with a voluntary certificate of PHPL is 6 units. For the company of IUPHHK-HT even fewer, at only 3 units. Various pressures from the outsiders can affects deterioration the performance of PHPL at natural forests that would increasingly threaten the achieving of REDD Plus.

3.4. Tenurial Obscurity

Tenure implies that there are rights to land resources / land by individuals or groups / society of daily living (indigenous) to use it in a variety of business purposes or daily needs fulfillment. Act No. 41 of 1999 on Forestry recognizes the existence of indigenous natural forests outside the state forest. But in fact (de facto), in different areas, society in and around natural forests claimed that land and forest that has been burdened with rights or abandoned (abandoned by managers) is their inherited hereditary. They do not have any evidence, except witness statements and the surrounding society which aware of the existence (status) of land. Obscurity the resources to recognition with no evidence (documents) raise of any often resulting usage conflicts (land and natural forests).

Indigenous rights and / or local society regarding tenure often lead to horizontal conflicts, especially against the user of natural forests resources and land use. Tenure rights stipulated in the Constitution of the Republic of Indonesia 1945, which stated "the state must recognize and respect the units of customary law and traditional rights of all are still alive and in accordance with the development of society and the principle of the unitary state of Indonesia". Implementation of the mandate of the Constitution are still not as expected. Therefore, Ministry of Forestry has developed strategy and policies as follows:

a. Instructed the Minister of Internal Affairs with the National Land Agency (BPN) through the President's instructions to carry out an inventory of local indigenous peoples and others, including the customs, cultural and historical resources the utilization of resources;

b. Supports the BPN to facilitate tenure conflict settlement through conflict resolution mechanisms that have been regulated in Law Number 30 of 1999 on Arbitration and Alternative Dispute Resolution, Law Number 39 Year 1999 on Human Rights, Government Regulation No. 54 of 2000 on Environmental Dispute Settlement Institutions in outer Court, the Supreme Court Circular No. 1 of 2001 on Mediation in the Court.

Mediation of conflict resolution are often not produce a solution which is expected because the Government is likely to submit the settlement company (holders of IUPHHK). Society as the leading "vanguard" to secure and protect forests (safe guard) becomes the key of success to overcome leakage (leakages) additionality of GHG emissions. COP-16 in Cancun, Mexico emphasizes the functions and important role of society in reducing GHG emissions. Without consideration of the role of the community then is inevitable conflicts would tend to eliminate the greater benefits that can be accepted by the parties to resource users. Therefore, land use and forest conflict resolution should be accompanied with a strong determination to provide mutual benefits, both government, private, and of society.

Land rights in the local community, if dealing with state forest then not applicable unless they obtain permission to use these resources. It is different if the soil / the land is outside the forest area (called area for other uses, APL) they can obtain land certificates. Before a certificate, they usually take ways to obtain the Certificate of Land (Girik) from local village chief. Meanwhile customary land within forest area must be knowledge of the village, sub district, and district heads. Based on accurate inventory, then the Regent can apply to the Minister of Forestry to let out from state forest. Furthermore, the Regent may issue a decree to establish as indigenous forest that should be managed with the principles of sustainability which includes aspects of production, social and ecological. To avoid a sharper clash over control over the indigenous forests, the Government (Ministry of Forestry cq.) are more likely to grant permission as forest villages (HD) to of society which will manage the forest.

3.5. Unstable Policies in Climate Change Mitigation

The situation encountered in the mitigation of climate change can be briefly described include (a) the accuracy of forests widespread data, (b) changes in the function and forest allocation, (c) commitment at sustainable management forests, (d) emission reduction commitments, (e) coordination implementation of REDD Plus, (f) the temporary suspension the granting of management primary forests and peat lands, (g) regulations on the use of carbon credits, (h) reference level of emissions, and institutional mechanisms MRV.

During the period of 2000 - 2005, the rate of deforestation (forest cover change) reached 1.1 million hectares per year. The rate of deforestation which is planned to discharge the area for non-forestry cultivation is about 0,24 million hectares per year (21% of total deforestation), and unplanned is about 0.86 million hectares per year. Especially in production forests, forests area that burdened of IUPHHK reached 28.2 million hectares. It is estimated that only about 15 million hectares which implementing sustainable forests management system, while the rest do not. While the forests area of production that do not have permission reached 20 million hectares and about 7 million hectares of the area already severe degradation.

Bilateral and multilateral cooperation in support of REDD Plus is still not well coordinated. The pattern of cooperation are quite diverse, ranging from the activities that focus more at capacity building, institutional development and the implementation of demonstration activities (readiness) to the cooperative activities more focused on carbon credits to REDD Plus such as LoI Norway. For cooperation with Norway, has already issued

Presidential Regulation No. 10 of 2011, dated May 20, 2011. This regulation is important because it has been noticed the definition of natural forests, limits of activities, and handling systems of carbon leakage.

Guidelines in determining a reference emission which will serve as the basis for measuring success in reducing emissions has not been compiled in a comprehensive manner including the institutional mechanisms MRV (measurement, reporting and verification) that has not been developed. The considerations of 'national circumstances' in determining reference emissions as adopted by the UNFCCC have not been agreed by the parties.

Several things to consider and further establishment of policies include (a) establish reference emission levels (reference emission levels, REL), (b) the coordination of bilateral and multilateral cooperation programs, (c) determination of HPK which still wooded, (d) KPH, (e) the policy incentives, and (f) establishment of performance appraisal system.

Several alternative policies that can be taken by the Government include establish emission reference levels considers to better understanding of national conditions, made an agreement with other sectors to the assumption of REL, as well as setting up a system documentation data and supporting information that is needed in an independent verification process centrally. Coordination of policy formulation should involve other sectors that related because of this complex problems that lie in mitigation of climate change and the interests of each sector that often ignore the mutual interest.

Furthermore, it takes an organization to coordinate bilateral and multilateral programs to readiness (until 2012) so it can accelerate the readiness to enter into bilateral and multilateral agreements that are more oriented at carbon credits. In order to this has already formed the REDD Plus Task Force (Task Force) which is under the coordination of UKP4 (Presidential Working Unit of Supervision and Control of Development). REDD Plus Task Force directly responsible to the President which duty to develop (a) REDD Plus policies and strategy, (b) incentive funding mechanisms, (c) REL and methods of measurement, reporting and verification (MRV), (d) the distribution of benefits and safe-guard, and (e) institutional REDD Plus, which include REDD Plus agency, agency funding instruments, as well as MRV institutions.

Nationally need to define HPK as permanent production forests were changes from the HPK to HP should not be considered as function changes so it does not have to go through the changing process of the functions forest area in advance. In order to establish these changes the authority is at Ministry of Forestry. This policy is very important because HPK often becomes seizure between sectors and regions for the purposes besides forestry cultivation.

Institutions level -site should be established and to be functioned which is (Protected, Conservation, and production). Meantime the development process is very slow because it is hampered in the Ministry of Administrative Reform (PAN) should reflects the true forest management and more focus because it is located on the site. Management functions such as planning, supervision and forest controlling management in the field become the center of the successful implementation of the REDD Plus sequestration / storage carbon. Therefore, especially KPHL and KPHK become an important part of the assignment in climate change mitigation through schemes that have been agreed upon and approved by the UNFCCC. Meanwhile, the implementation by the private developers and communities in climate changes mitigation will be coordinated by level -site. Meanwhile norms, standards, criteria and guidelines (NSPK) about the implementation of mitigation of climate changes established by the Government, and Local Government implement all the Government's policy functions regarding the NSPK.

The government also need to immediately issued an incentive policy as an instrument to encourage developers, private and communities in conducting climate changes mitigation activities, particularly at the activities that avoiding deforestation and the degradation, forest restoration and rehabilitation of marginal production through development of plantation forests and agroforestry (the REDD Plus) . This policy should be a priority because the pressures and exhortations of population in and around the forest is very profusely to different interests for a living. In addition, local interests to develop the residential, cities, and various licenses for the development of non-forestry cultivation is very dominant and has a very strong attractiveness for Local Government.

On the other hand, we need to structured a system of performance appraisal, the reporting the internal review (MRV) institutional arrangements includes the implementation of programs of controlling deforestation, the forest degradation the land rehabilitation from the local up to central level with due observance of international standards. International standards become imperative because the buyers of carbon credits from overseas require an international standard. Monitoring the results measurement of carbon reserves to support REDD Plus activities is basically calculate the carbon stocks at region included in REDD Plus activities. This for knowing the amount of emissions reduced or increased as a result of REDD Plus activities. The results are based at monitoring of emission reductions that have been prepared by REL. In order to meet the criteria of the monitoring results of MRV, GL 2006 IPCC method can be applied to consistency. Meanwhile of REDD Plus activities the reporting activities carried out periodically according to the monitoring period. The information contains condition of carbon Stock, biophysical, threats the risk, socio-economic, cultural, and governance.

In order to ensure that emission reduction targets can be achieved measurable, transparent and consistent it is necessary to verify the achievement of REDD Plus activities. Verification conducted by independent assessors either an internal appraiser institutions (at national the sub-national) and external (international). The results of this verification are the basis for issuance of certified emission reductions. Verification done for ensure (a) how much emission reduction according to the results, measurable, transparent the consistent over time, (b) the basis for setting reference emission, (c) the method of measurement used, (d) presence / absence of emission transfer (displacement of activity / emission), (e) consistency with provisions under the UNFF, CBD the CCD), (f) the achievement of transparency the fairness in the distribution / distribution of REDD Plus activities incentive.

3.6. Good Governance and Weak Law Enforcement

Violations of law in generally are no exceptional, even when it is occurred in the scope of the forestry business that resulted in increasingly deterioration performance of PHPL. Many examples justify this opinion, include (a) the rampant illegal logging especially on IUPHHK-natural the forest that are difficult to eradicate, (b) encroachers and burning the forest to fields that never subsided, and (c) the forest fire at preparing land for gardens that still exist in some places during the dry season. This often occurs at handling some cases in interpreting the Act to each other varies according to the law enforcement version. For example, Act No. 41 of 1999 on Forestry and bang with Law No. 32 of 2004 on Regional Autonomy, and also the Book of the General Penal Code and / or the Civil Procedure Code (Criminal Code and Criminal Procedure Code).

Enforcement of the are strict and consistent (including the government officials) for violations committed by holder of IUPHHK and IUPJL that do not implement sustainable forest management and other obligations according to the prevailing regulations, as well as the

perpetrators of forestry. Ministry of Forestry (2011) have done some things related to law enforcement in the forestry sphere. For the purposes of preventing violations of law we need to conducted a review of policies and legislation that led to indication of law violation. Also, it is necessary to study the policies and regulations on timber legality verification systems (SVLK) and sustainable forest management (SFM). Independent and internal assessment (Inspectorate General, Ministry of Forestry) is done by applying the criteria and indicators of good forest governance (good governance forestry - GFG). These conditions, if not immediately resolved would reduce the interest of employers to implement the SMF and would reduce national competitiveness.

Establishment of environmental prosecutors and police at one roof (one roof enforcement system, ores) that selected based on integrity and adequate knowledge of sustainable development, including its application at the forestry sector with adequate remuneration so it can become the frontline in the enforcement of laws relating to forest crime. The establishment of specialized judge with integrity and understanding of environmental matters as case breaker including the forestry sector, with adequate remuneration so it can facilitate and uphold the justice and legal certainty in the scope of sustainable natural resource management. Increased capacity of law enforcement in general is in order to understand the whole forestry legislation, as well as methods of inquiry and investigation that can be used to combat crime in the field of forestry. The weakness of law enforcement, especially in the forestry sector has resulted in deterioration performance of sustainable forest management. More degraded forests directly resulting GHG emissions is increasing from year to year, especially period from 2000 to 2005. After the Presidential Instruction No. 4 of 2005 on regulating the industry's informal and eradication of illegal logging the forest degradation rate which is smaller from the an average of 1.1 million hectares per year to only around 0.8 million hectares, or even according with method of calculation mode is only about 0.7 million hectares (Directorate General of Planning, 2007). The biggest case from the forest degradation is as a result of the forest fires happens at drought of 1997/1998, including those that occurs at a million hectares of peat.

3.7. Temporary Termination (Moratorium) of New Permit for Utilization of Primary Forest and Peat Land

In accordance with Law No. 41 of 1999 on Forestry, forest management and peat lands (inside the forest area) is essentially become government obligation to organize, but specifically there are no settings for the management of peat outside the forest area (within the Area of other uses, APL) . Various regulations on sustainable forest management has already published by Ministry of Forestry, including standards of either performance appraisal PHPL in natural forests as well as plantations. The provisions concerning the forest management set out in Regulation No. 6 of 2007 jo PP No. 3 of 2008, with no exclude the management of existing forest peat

Pearland management must conducted through an ecosystem approach because the level of vulnerability at environmental damage that could endanger the surrounding areas. Peat land management cannot be separated from the administrative approach (region) so it needs to be handled by an agency. Reinforcement patterns and peat land forest management is a necessity in order to control deforestation and degradation of forests and peat lands can be realized (Ministry of Forestry, 2011). These efforts can be taken through review and harmonization of (a) policies and regulations related to the management of forests and peat lands to strengthen the management model of conservation areas, (b) policy and regulations management of peat lands, and make improvements at all policies and regulations related to

management of peat lands, including specify the appropriate government agency assigned the task of monitoring, licenses, and control, and (c) land and forest conversion outside the forest area potentially for REDD Plus activities to be used as permanent forests through specific mechanisms and legislation (land swap) based on principles of fairness and openness.

Temporary suspension (two years) from 2010 to 2012 for provide permit on the management of primary forests and peat lands was not really affects against licenses that have been obtained by IUPHHK holders those who taking care of an extension license to be extended into SP-1. The signing of the LoI between the Indonesian - Norway is as a form of embodiment of the two countries for GHG emission reduction. Then, that's followed by the issuance of Presidential Instruction No. 10 of 2011 on the Suspension provision of Permit and Completion of New Governance Primary Natural Forest and Peat land.

In summary, temporary suspension of new licenses at management of primary forests and peat lands would have implications for sustainable forest management efforts as well as the achievements of efforts to increase carbon stocks and GHG emissions reductions from deforestation and forests degradation (REDD plus). REDD plus at conservation forests does not seem much affected, but the results are not considerable because the countries of Anex-1 is more interested in the peat lands as largest of carbon storage, and temporary suspension (suspend) licenses at the management primary natural forests and peat lands. How does the impact on forests management and business development in other fields can be followed in Box 4. For Regional and employers in all sectors of land resource users that violate this Instruction will be subject to sanctions.

3.8. Effectiveness of the implementation of REDD Plus on Sustainable Forest Management

REDD Plus scheme or schemes for reducing emissions from deforestation and forests degradation is believed by many as one way of effective and inexpensive mitigation against climate changes. With such schemes, emissions from forest area, which is about 19% of total world emissions, expected to be suppressed. Various mechanisms are offered in the REDD Plus scheme. At its core is how to assess the stock of carbon stored in forests. REDD plus is the development from the REDD schemes that rigid, that only value forests conservation efforts to maintain the carbon. REDD plus also assessing sustainable forest management (sustainable management of forests, SMF) and enriching forests for adds carbon stocks.

Although the UN program that handles REDD scheme has not been very clear, the UNFCCC estimates that at least 30 billion USD per year will flow from the emission-producing countries (Annex-1) through the scheme. A number of demonstration activities (demonstration activity, DA) at the stage of readiness to see how the implementation of REDD Plus scheme is also held in Indonesia. Indonesia became a prima donna trial, because it has a large forest area (number 3 of the world after Brazil and Democratic Republic of Congo, RDC). A number of bilateral cooperation has also been agreed within the framework of REDD plus. However, the most 'controversial' is the signing of a Letter of Intent (LoI) between the Indonesia and Norway, in May 2010 and then because the lack of certainty about the future of REDD plus, Indonesia gave up the forest and peat lands they owned to stop their utilization according to the agreement. Inpres suspension is part from the national action plan to reduce GHG emissions, which is also the measure taken based on national interests. This is proven by the existence of the blueprint of the policy, as set out in Medium Term Development Plan (Development Plan).

Issuance of Presidential Instruction (Inpres) No. 10 of 2011, dated May 20, 2011 regarding New Permit Delays and Improving Governance and Natural Forest Primary Peat land, slightly reduce the controversy. Exceptions that given to some activities such as (a) the permissibility of business development to petition that has received approval in principle from the Ministry of Forestry, (b) implementation national the development of which is vital, which is the exploration and exploitation of geothermal, oil and gas, electricity, and land for rice and sugarcane (c) renewal permission or use of forest use and forest area that has existed throughout the area of its business permission is still valid, and (d) restoration of ecosystems are considered as a 'middle way'. This Inpres better known by the moratorium as compared to delay (suspend), whereas sense only delays provision of the new permit to primary management natural forests and peat lands. Parties who object to the LoI is mainly coming from the business of oil palm plantations because the closed his chances in this sector while expanding the vital and strategic for the economy (AgroINDONESIA, 2011).

Meanwhile, the Inpres is also potentially cause conflicts to other legislation such as Law No. 41 of 1999 on forestry. Even this collide to Presidential Decree (Decree) No. 32 of 1990 as well as Regulations the Minister of Agriculture (Permentan) number 14 of 2009 that allows usage peat lands with a depth of less than 3 meters. In addition, the possibility may lead to confusion (dispute) and the presence of 'road map indicative delay the new permit' to RTRW that could cause new problems.

However, basically the Presidential Instruction has a positive impact on legal certainty, which has implications for risk and uncertainty and business investment (Fadil, 2011). Then Handadhari (2011) adds ie the positive impact existence of licensing certainty, the certainty of land, law enforcement and regulations certainty, the certainty of obtaining services and protection efforts. Legal certainty is shown among others by the absence of revocation of permits granted and delay against permit that already in approval process. So, with this consideration actually Presidential Instruction is already oriented to the national interests, within and subject to the legal system and legislation, social systems and economic systems Indonesia. Furthermore, to maintain the consistency of this government issue will soon launch a Presidential Instruction on the use of (procedures) degraded land to land-based economic activity not stopped.

However, delay in granting the new policy has the potential to cause new problems in the field, especially related to law enforcement and pressures from the free riders group and groups that exploit weaknesses in the information field. Therefore, the government should immediately fix the indicative map of the new permit delays. Indicative map of the new licensing suspension area must improved, including in terms of scale in order to clear the field, and locations that contain objects became problems in aligning the interests of all parties and / or needs. It is currently being prepared an indicative map scaled of 1: 500,000 to update the map indicative delay permit that has been defined in Presidential Instruction. In fact, the indicative maps will be made more detailed into scale 1: 250,000. If there are provinces that have a map of the indicative scale of 1: 100,000 it will be delays with map of the indicative scale. It should consistently be guarded so that not new problems arise in the field.

REDD Plus scheme would may provide good economic benefit if there is no inconsistency forestry policy the development of, plantation, and other sectors in the field. This often threaten the existence of a sustainable forest management or ecosystem sustainability at the production or conservation forests, protection forests and production forests, restoration of ecosystems. The growing problems such as overlapping business locations that has been given the permission between the ministry of forestry and local government, land ownership (land tenure), the demands of public welfare, lack of land and labor productivity, land and forest fires must immediately rectified in order REDD plus it can be adopted by users resources (land and forests). Therefore, the drive to manage forests and forest areas sustainably not just to

obtain funding from the REDD Plus scheme but due to the national interest (Setiawan, BI, 2011 in AgroINDONESIA, 2011). Therefore, the performance appraisal of Sustainable Forest Management (PHPL) to IUPHHK that has become a liability must be encouraged, if it is successful the rewards or incentives by the Government should be given. Thereby, the REDD Plus scheme will be consistent with the standards appraisal of PHPL performance which also would benefit from carbon credits. In turn, REDD plus may implemented in production forests that managed sustainably - that certified by PHPL - thus obtained carbon credits from the REDD Plus scheme would become a bridge to the green product (green product) or products that are environmentally friendly.

BOX 6
The Difficulties of Entering the Climate Change Mitigation Scheme for Plantation Forests

Industrial Plantation Forest (HTI), or plant forests in general, the planting activities directed at the degraded area. But many of HTI which still planting begins with land clearing activities (land clearing). Afforestation and reforestation (A/ R) as an act of rehabilitating forest by planting is the holding of forest plantations and other plants program, such as the Community-based Plantations Forest (HTR), Smallholder Private Forest (HR), and Community Forestry (HKm) to permit the use of forest wood (IUPHHK). Scheme mitigation of climate change for forest plantations and other plants have actually entered into the REDD plus scheme that is under the practice of sustainable forest management and or A/R.

However, until now there is no incentive-party lending institutions in financing climate change mitigation efforts to increase carbon sequestration (carbon equestration) under that forest plantations and other plants.

Two plantation companies, one in Jambi and one in East Kalimantan have not been interested in asking incentive funding for higher difficulty levels.

Unless the plantation companies have the land / forest conservation which exists or can be separated from the total area of existing plantations, and subsequently filed an incentive financing climate change mitigation with a particular scheme. It is being done by the Sinar Mas Group in Kampar Peninsula, Riau with an area of peat land for conservation functions covering approximately 60 000 hectares.

According to the research, HTI is able to absorb large amounts of carbon, which is about 40-50 Mt of CO2e per unit hectare (Forest Research Centre, 2010). If Indonesia has a target of 20 million hectares in 2030, then the potential of free carbon that can be absorbed by forest plantations and other plants is about 0.8 -1.0 Gt C02e. If prices of per ton of C02e from forest plantations and other plants U.S. $ 5 than will get an incentive fund of U.S. $ 4-5 billion (= Rp34.0 - 42.50 trillion) per year. Quantities that remains to be reduced by cutting per year (eg 70 million Mt C02e= 0.07 Gt C02e) plus any other damages (leakages) of 0035 Gt C02e from soiland litter will still have a surplus about U.S. $ 3.5 -4.5 million (= Rp29.5 - 38.0 trillion) per year. The range surely different between one type to another type of timber plants.

The difficulty of plantations forest and other plants entered the scheme because these types of businesses and activities considered to be a change of deforestation of natural forests with high bio-diversity into plantations forest that only have very few bio-diversity. This understanding should be campaigned to the international community that forest plantations and other plants is not an activity of deforestation, but to improve productivity and vegetation cover with a fixed function as a forest. Therefore, plantations forest and other plants should encouraged to obtain financing climate change mitigation incentives.

4

SUSTAINABLE FOREST MANAGEMENT AND REDD+

REDD+ scheme can be applied in the management of SFM requires various policies and regulations of the underlying implementation of the reduction of carbon emissions and increase carbon stocks. In addition, to fully implement this scheme, there are still many problems to be addressed. This requires a strategy of storage and carbon sequestration and REDD+, the determination of Reference Emission Level (REL), and ways of Measuring, Reporting, and Verification (MRV) to obtain a positive incentive. Carbon stocks/ sequestration and REDD+ are new schemes proposed in the United Nations Framework Conference on Climate Change (UNFCCC) in which these schemes must have a market incentive to obtain funding from the carbon stocks/ sequestration and REDD+.

Another thing that also important to get attention is the distribution of results after getting the funding incentive scheme for implementing the schemes on carbon stocks/ sequestration and REDD+. The principles of good governance must underlie its implementation because this scheme involves several stakeholders, primarily project developers/ private, community, and government. Level of security (safeguards) also requires attention because of the leakages which happens will be harm towards the implementation of the schemes on carbon stocks/ sequestration and REDD+ because of the reduction in incentive funding. Below this will be explained the determinant factors to the success of carbon stocks/ sequestration and REDD+ as well as have been mentioned above.

Within this scheme, the increase of carbon stocks can be done through the carbon sequestration which can be done by planting trees in degraded areas or in particular pathways in natural forests. While the carbon stocks capability is performed on forest conservation and SFM practices through delay of cutting tress and or moratorium of forest and peat lands.

4.1. Definition of REDD+

Reducing Emissions from Deforestation and Degradation Plus (REDD+) according to the Bali Action Plan, paragraph 1 b (iii) can be defined as policy approaches and positive incentives on issues which are relating to reducing emissions from deforestation and forest degradation in developing countries, and the role of conservation, sustainable forest management and enhancement of forest carbon stocks in developing countries (UNFCCC Decision 2/CP 13-11). REDD+ actions cover a wide range of local, national and global level to reduce emissions caused by deforestation and forest degradation and also increasing forest carbon stocks in developing countries. The plus sign indicates an increase in forest carbon stocks that also

refers to the forest regeneration and rehabilitiation, negative degradation, negative emissions, carbon sequestration. [12]

There are three kinds of changes which are included in REDD+, namely deforestation, degradation, and regeneration and also rehabilitation. Deforestation is the decline of forest area, degradation means the reduction of carbon density, and the regeneration and rehabilitation of land and forest means the increase of carbon density. Expanding the forested land area (e.g. through aforestation and reforestation (A/R) is another way to increase forest carbon stocks, but the A/R is not included in REDD+. A/R is a part of the Clean Development Mechanism (CDM). In this study, A/R CDM is not discussed further because it's irrelevant in the context of SFM.

The term of conservation and SFM, in accordance with the quote above is rather difficult to be included in that definition. These terms can refer to a number of activities that reduces emissions and increase carbon sequestration of forests. For example, approach in differences of reserve (Wertz-Kanounnikoff and Verchot, 2008 in Arild Angelson, 2011), which is a standard technique for measuring the emission and absorption, without take into account on how the change happens. On the other hand, the **increase-reduction** approaches take into account the impact of different measures of forest carbon, such as a **better forest management**. A number of actions that can be classified (to be counted and given credit) into the increase-reduction approach until now have not been established yet.

The term of conservation is used in a number of documents and the debate is also not expressly defined. Forest conservation, of course, is a way to reduce emissions, but conservation can also refer to the system where payments are based on actual forest carbon stocks, and not by changes that occur in the reserve (Arild-Kanounnikoff Angelson and Wertz, 2008). It is not yet certain whether REDD+ payments in the future will be based on carbon stocks.

4.2. Sustainable Forest Management Policy in REDD+ Scheme

Discontinuation of illegal logging and implementation of environmental friendly logging in tropical forest area which accompanied by controlling forest fire can reduce the carbon emission and increase the carbon sequestration effectively and cost-effectively (Putz, F.E and Nasi, R., 2010). Carbon sequestration in degraded forest can be enhanced through better forest management practices and active recovery after logging. Target of REDD+ related to forest degradation is more likely achieved compared to previous. Partly because of recent advances in remote sensing technique for monitoring logging and forest fire that added with the availability of a system to determine the location on earth (Geographical Positioning System, 'GPS'), especially if fully combined with the ongoing forest certification.

SFM policies included (1) sustainable forest management certification, (2) wood legality certification, (3) increase productivity of industrial forest (HTI), and (4) development of Community-based Forest Management (CFM) namely community-based plantation forest (HTR), small-holder private forest (HR), community forest (HKm), village forest (HD), and customary forest (HAd).

[12] Absorption here is defined as the sequestration of carbon from the atmosphere which is afterwards will be stored in forest carbon sources.

First, in the context of REDD+, SFM is a local, national, and global action. Locally because it's done in the local unit management that set nationally based on SFM standard, also recognized in global level for action that can fulfill the requirement of sustainable development. SFM also a part of particular action to reduce emission and increase forest carbon sequestration through activities such as prevention the reduction in forest area (reducing deforestation), prevention of forest fires, forest encroachment and illegal logging, rehabilitation degraded forest areas (reduces degradation) and forest plantation development (increase carbon stocks). Standard measurement technique to measure emission and carbon sequestration on sustainable forest management is done through **increase-reduction** by taking in into account the changes that happened and impact of various actions towards the forest carbon. Incentives payment of carbon funding is based on **fluctuation**, namely defined as between of carbon reduction and escalation of carbon sequestration.

Nowadays, after a period of natural forest management occurred for nearly 40 years, majority area which managed by permission of timber utilization (IUPHHK) in particular natural forest (HA) is a logged forest (Logged Over Areas, 'LOA') so the logging should be based on growing stock (growth increment of trees). Provisions concerning on the conditions of wood supply are determined every 10 years through the comprehensive periodic forest inventory (IHMB), appropriate silvicultural systems according to the site and apply the Reduced Impact Logging (RIL), will provide a sustainable logging that is required by the national timber industry. Logging often leads into a debate because of the consideration of logging as an increase on carbon emission in REDD+. However, SFM specifies that logging should be based on its increment or equal with the increasing of carbon stock (carbon sink) in a timber. Fluctuation that occurs is namely defined as changes between before the harvested done (baseline) and after the logging/harvesting take place. Planting enrichment or planting with silvicultural system such as Indonesia selective cutting and planting (TPTI) or selective cutting and line planting (TPTJ) or Indonesia selective cutting and planting with intensive silvicultural technique (TPTII) will able to escalate the carbon stock in the forest higher than baseline, means that negative degradation or negative emission because of higher carbon sequestration than previously.

SFM certification also implement for management of HT (HTI) and Community-based Forest Management (CFM)[13] namely HTR and HKm (with permit utilization) and or HD/HAd (with management rights), while HR is a forest management on a land owned. REDD+ context in management of plantation (HT carbon in fluctuated period between reduction of emission and increase of carbon sequestration). It is quite hard if this HT derives from the changes of HA to HT. therefore, policy of the Ministry of Forestry determined that HT areal should be a vacant area, reeds, and or shrubs. Carbon sequestration in areas that have been planted, of course, will be much higher than the initial conditions that are neglected. The vacant area, reeds, shrubs and or owned by society as individuals can be a HR that may be filled to obtain REDD+ financing incentives.

Meanwhile, the development of SFM certification for CFM is still in a few numbers. The same complaint made by CFM management unit that budget is the main constraint is why many CFM are not yet certified (Ebeling and Yasué, 2009). Apparently, but not yet proven, forests that have been certified store and absorb carbon much higher, provide more non-timber forest products and also contribute more biodiversity than the tropical forests that have not been certified yet. Forests that have been certified may be more resilient towards

[13] Community Forest Management (CFM) combines two things: a type of resource (forest) and a group of owner/manager (community). CFM term broadly for referring into a various different forms: Participatory Forest Management (PFM), Joint Forest Management (JFM), joint forest management (forest co-management), and Community-based Forest Management (CBFM).

climate change (Guariguata, et al. 2008). Thus, supporting the certification seems to be a way of using the fund of REDD+ in effective and efficient way.

Second, timber legality certification is required to support the legality of timber (legal logging) that produced in accordance with the rules of SFM. Through the efforts of timber legality certification, it will reduce the rate of illegal logging, which means holding the rate of degradation. This certificate will be derived after the management unit that manufactures wood done timber legality verification (VLK) by credible independent institutions.

Associated with SFM certification and legality of timber on the HA and HT require strict requirements on the production aspects (utilization of timber) as has been described in the session 2.2.1.1 (REDD+ in Forest Management Aspects of Long Term Assurance) and session 2.1.2.2 (REDD+ in Aspects of Production). Legality of the timber is not directly related to REDD+, but because the system is implemented to VLK is quite strict, then this action could prevent the occurrence of excessive degradation as a result of illegal logging.

Ministry of Forestry sets standards of performance appraisal of SFM and legality of mandatory timber based on the Regulation of the Minister of Forestry, Permenhut Number P.38/Menhut-II/2009 on Guidelines for Performance Assessment and Timber Legality Verification of SFM. This was followed by the Director General of Forestry Production Development Regulations (CPC) Number P.06/VI-Set/2009 on Standards and Performance Assessment of Sustainable Production Forest Management and Timber Legality Verification Regulation of Director General of CPC Number P.2/VI-Set/2010 about Manual Implementation of Performance Appraisal of Sustainable Production Forest Management and Timber Legality Verification. While other standards that are voluntary include Forest Stewardship Council (FSC) and the Indonesian Institute of Ecolabelling (LEI).

Third, increasing the productivity of forest plantations is the act of increasing carbon sequestration in a particular period. It is called in a particular period of waiting until the tree growth and ready to be cut down (moratorium). Therefore, in REDD+ scheme illustrated as a curve which declined due to land clearing of utilized vegetation or not, then go up due to the planting of vegetation cover as a result in absorbing carbon keep on increasing.

Productivity of HTI in 1990 period is only about 65 m^3 per hectare. In 2000 period it has reached about 125 m^3 per hectare (Manurung, EGT et al., 2007). Today, the productivity is currently being enhanced to achieve an average of 200 m^3 per hectare by some plantation companies in Indonesia. For example, recent research results on Research and Development of Forestry, industrial forest companies show that the above ground carbon stocks for *Acacia mangium* plantations amounted to 91.2 ton C/ hectare, *Pinus merkusii* amounted to 74.6-217.5 ton C/ hectare (Gintings, 1997)[14], *Tectona grandis* amounted to 116.4 ton C/ hectare (Irawan, 2009), and several other types such as *Swietenia macrophylla*, *Peronema canescens*, *Shiema wallichii, Paraserianthes falcataria*, and others with the lowest result is equal to 35.7 ton C/ hectare (*Peronema canescens*) and the highest result is equal to 122.7 ton C/ hectare (*Paraserianthes falcataria*) (Center for Climate Change Research and Development and Policy, 2010).

Policies to improve the productivity of HT will repair the success of REDD+, especially on the ability of HT to absorb large amounts of carbon and store carbon in a long time. It can

[14] Methods that used in the research of reserve carbon above ground level for plantations forest is the destructive sampling methods on *Acacia mangium* plantation forest age 6 years and *Swietenia macrophylla* plantation forest age 16-20 years, *Peronema canescen* age 10-25 years; *Scima wallichii* in Benakat plantation forest, South Sumatra and the Forest Research Station in Tanjungan, Lampung; *Pinus merkusii* age 14-24 years and 8-18 years of age *Paraserianthes falcataria* in Plantation Forest in East Java and West Java.

be multiplied by selecting superior seeds, land suitability, treat the tree by removing weeds and trim the branches/canopy of trees that are less powerful with compete (Wadsworth and Zweede, 2006; Villegas et al, 2009). The application of silvicultural systems that regulate the logging rotation and large accreting rate and quality of the resulting plants will help reduce the rate of degradation of HT. Then recover it with HT to provide various activities that can improve the economy of communities in and around forests through various cooperation schemes.

Fourth, the development of CFM in all over Indonesia showed an increasing trend. Efforts to develop CFM deserve to achieve the award because it is an individual initiative (community) without the subsidy or assistance from the government and the private sector. Although the HTR can be assisted through loan scheme of the Public Service Board (BLU)-Center for Forest Development Funding (BLU-BP2H), Ministry of Forestry, but until now, not many people use the facility as a revolving fund. CFM that primarily managed by the communities on the island of Java has a very rapid development, while outside of Java Island has not shown substantial progress. Outside Java, people prefer to manage rubber or oil palm cultivation rather than wood.

Up to now, the total CFM especially for the new HTR reached about 631.6 thousand hectares of permits issued by the regents/governor, but the graphics area of reserved land continues to rise because the demand for wood is also increasing. Until 2014, has been reserved area of CFM (HKm, HTR, HD) around 7.9 million hectares which spread throughout Indonesia. While the wide of HR area until September 2011 is estimated to reach 2.8 million hectares.

CFM will greatly help to increase farmers' incomes that the average is still below the line of poverty. CFM development policy is a mandate given in the Millennium Development Goals (MDGs), which should alleviate the number of poor people in a country. The concept of incentive funding here for the global community (group of States of Annex 1) that being the donor countries want the distribution of benefits of REDD+ should go for the poor.

Various policies of REDD+ should encourage CFM institutions which are fair, understandable, and has number of rules set at a given location and also enforced at the pertinent site. These institutions are expected to build accountability, including the imposition of sanctioning systems, conflict management, and a number of rules of judicial process. Furthermore, institutional arrangements should be cultivated through collaboration and discussion with community members.

4.3. Policy of Pan/Rap Carbon and REDD

In Chapter 2 (Sub-chapter 2.1) mentioned that the laws and regulations related to REDD+ schemes as much as 34 pieces. This indicates on how severity the REDD+ implementation in Indonesia because of the many obstacles, problems and constraints to be faced in its implementation. Laws and regulations related to storage/sequestration of carbon and REDD+ are not only related to forestry, but also related to outside of forestry directly or indirectly. The complexity of this problem will lead into the possibility of REDD+ can be failed if not managed properly (good governance). The essence of all these regulations is basically supporting the implementation of SFM in which success or good performance of PHPL will support the successful implementation of the storage/sequestration of carbon and REDD+.

Policy in the implementation of storage/carbon sequestration and REDD+ is (a) reform of the construction sectors of land-based, (b) rulemaking related to the implementation of storage/carbon sequestration and REDD+, (c) implementation of the Demonstration Activity

(DA), (d) capacity, capabilities and communications building of the parties, (e) preparation of national strategies storage/sequestration and REDD+, and (f) preparation of national measurements standards of GHG emissions.

First, the reform of land based sector development such as agriculture, forestry, and plantations. The agricultural sector, particularly for food crops and horticulture are touching the lives of rural communities. Shifting cultivation in or surround the forests, primarily for land users over the land ownership rights, often trigger a conflict with other users based on larger-scale business license. There should be recognition or respect of the rights for them in order to obtain the REDD+ scheme on financing incentives. Such policy is necessary to have regulation support for those purposes.

Land allocation arrangements have been accommodated in the Provincial Spatial Plan (RTRW-Province/Regency/City). Land for the cultivation of non-forest areas are allocated on the Use of Other (APL) that excluded them from the forest area. The reserved area for becoming the APL area is 22.7 million hectares (17% of the total forest area) which taken from the Convertible Production Forest (HPK).

Mining area is set up on the Indonesian Government Regulation No. 24 Year 2010 on the Use of Forest Area. Mining Region (KP) is only allowed in forest area until up to 10% from the concession area (No. Permenhut. P.18/Menhut-II/2011 on Lending Guidelines for Forest Use). It is temporary feared by some of the forest management unit specifically the delay of SFM certificate due to land clearing by the miners (e.g. coal, gold, bauxite, tin, etc.).

Second, regulation of sequestration/storage of carbon and REDD+, i.e. (Permenhut) Number P.68/Menhut-II/2008 on the Administration of Demonstration Activity (DA) REDD/ REDD+, Number P.30/Menhut-II/2009 on Procedures of Reducing Emissions from Deforestation and Forest Degradation (REDD+), and No. P.36/Menhut-II/2009 on Procedures of Business Licensing for Sequestration and/or Carbon Storage.

Other regulations which regulate community forestry should also receive attention, especially when communities face difficulties in its implementation. The provisions which regulate community forestry are as follows:

a. Community-based of Plantation Forest (HTR) is based on Permenhut No. P.55/Menhut-II/2011;
b. Community Forests (HKm) which guided on the Permenhut No. P.37.Menhut-II/2007 jo P.13/Menhut-II/2009;
c. Village Forest (HD) is based on Permenhut No. P. No 49/Menhut-II/2008 jo P. 14/Menhut-II/2010;
d. Customary Forest (HAd) based on Law No. 41 Year 1999;
e. Small-holder private forest (HR) based on land ownership (certificate of ownership, 'SHM', or a certificate of land, 'SKT') based on Permenhut No. P.26/Menhut-II/2005;
f. Ecosystem Restoration (RE) based on Permenhut No. P. 50/Menhut-II/2010;
g. Collecting Non-timber Forest Products based on Permenhut No. P. 35/Menhut-II/2007, P. 19/Menhut-II/2009, and P. 21/Menhut-II/2009.

Except for HR, community forestry management schemes require business licensing, either timber forest products through IUPHHK and non-wood through the collection permit of non-wood forest products (IPHHBK), as well as environmental services business license (IUPJL). The policy further in the future should consider the possibility of RE can be managed by the community in a smaller area that also can take advantage of non-timber forest products through the regulatory, RE business licensing, and more simple collection of non-timber forest products.

Third, the implementation of DA intends to find a methodology to find out for Measurement, Reporting, and Verification (MRV), institutional systems at sub-national level, the distribution of benefits, increased capacity and capability of implementers, and etc. DA for almost these 3 years has been implemented in 14 provinces in Indonesia. Therefore, the actual REDD+ can already be applied in Indonesia, but still there are some policies that have not been set yet.

Implementation of the DA would last until 2012 (Stage Readiness) and afterwards is the Implementation Phase. The results of the study of DA will be utilized by all parties to get to know each other (transparent), information disclosure (openness), equality (equity), fair (fairness), and can be accounted for (responsibility). These principles are adopted in implementing the good governance. Furthermore, to face various problems in the implementation of REDD+, strategies should be formulated so that the implementation will not fail. In addition, it is also immediately needed in the to determine the REDD+ strategies, MRV, REL/RL that from 2012 a various of forest management actions can move and get financial incentives for good forest management.

Fourth, building capacity and capability of SFM have been done through education and training, and also counseling, but the results were not showing betterment. Based on the survey of ITTO (2009) stated that only 24% of the concessionaires (IUPHHK) are committed to implementing SFM. Only a few of entrepreneurial spirits, especially for the manager of natural forest, have a long term thought. The fact that there is now the manager of the HA is not more than 250 units (or remain 50% of the total manager of unit in 1980 and the 1990s). Unlike the manager of HT which are currently experiencing a rapid progress on its management rather than manager of HA. But the manager of HT often treated poorly by international competition on the global level. Therefore, it has become imperative to improve the ability of the managers and practitioner of SFM, whether will apply REDD+ or not.

Associated with the implementation of REDD+, building capacity and capability directed to RIL training and improvement of forest management (Schulze, Lentini, and Zweede, 2008). If applied properly by competent human resources, RIL greatly reduce the impact of selective logging on forest structure, carbon stocks, and other ecosystem characteristics (Johns et al, 1996; Bertault 1997; Pinard and Cropper, 2000; Putz et al, 2008). The practitioner of SFM on HA has received training, including mentoring, both technical and process towards SFM certification, but the practitioner is not yet fully appreciate and apply because the manager is less concerned with the reasons of budget constraints.

If the above requirements are ignored -good intentions and skills- it will harm all the efforts to promote SFM as a mechanism for reducing emissions from forest degradation. RIL and improvement of forest management is not an instant change that can be done by policy makers or the director of timber companies. RIL is an approach for planning, harvesting, and post-harvesting treatment that requires detailed knowledge and skills at all levels of the organization and usually requires cultural change in the forestry sector. While SFM is aimed to manage forests for the survival of a business in forestry through the various aspects that must be reconciled (see REDD+ in SFM). ITTO Project PD 396 / 05 Rev. 2 (F) has conducted an internal monitoring of SFM training techniques for the actors and practitioner of SFM in Indonesia.

4.4. Forming Strategy for Pan/Rap Carbon, REL, and MRV

Strategies that need attention in the storage/carbon sequestration and REDD+ should be directed to (a) community based forest management, (b) the role of conservation function

of Carbon Stock (CS) or carbon sink, (c) enhancement and maintenance of CS, (d) SFM in the storage scheme carbon sequestration and REDD+ through management of natural forest and plantations forest.

Indonesia with land cover area reached 187 million hectares consists of various types, forest types, and land cover. These conditions resulted in the dynamics of carbon measurement. For the context of Indonesia with "national accounting with implementation at sub-national (provincial/ district/ unit management) with incorporation" approach need to be further elaborated in the activities and conditions of bio-socio-geographic for implementation. At the national level, the measurement of carbon stocks in order to determine the Reference Emission Level (REL) nationwide is needed. Determination of REL must be determined for each sub-national level and must be consistent with the national level.

In order the storage/ carbon sequestration and emission reduction of REDD+ mechanism can be traded through the market mechanism, monitoring of storage/ carbon sequestration and emissions reductions must be done in ways that fulfill the rule of international and tend to be MRV (Measurable, Reportable, and Verifiable). In principle, the measurement of storage/ carbon sequestration and emission reduction can be done through a combination of ground survey activities and remote sensing.

4.4.1. Strategy of Pan/Rap Carbon and REDD+

Policies to improve forest management, reduce emissions and increase carbon stocks have been discussed above. If we accept that the practice of SFM may only be applied if the rules are effectively enforced accompanied by financial incentives, then the case of REDD+ funding becomes clear. But the challenge is on how to find strategies that are effective, efficient, and equitable to maintain and enhance carbon stocks that also provides other additional benefits.

To develop effective strategies, efficient, equitable, and there are other additional benefits, Putz, FE, and Nasi, R., 2010 stated the need to formulate policies for the benefit of improved forest management, reduced emissions, and enhance forest carbon stocks. The policies are as follows:

a. assist the development of certification by a third party;
b. require the use of environmentally friendly logging techniques (RIL);
c. train loggers and reward appropriately;
d. control of forest fires;
e. develop incentives to increase carbon stocks in forests that have been logged, burned, and destroyed;
f. improve land tenure security and access to resources for forest owners and holders of IUPHHK;
g. improve the efficiency of the sector through appropriate taxation; and
h. develop policies or incentives to improve the management of market instruments.

Opportunities to get REDD+ financing incentives to practice for a better forest management, reduce emissions, and increase carbon stocks are very open. However, this scheme still has no clarity from the UNFCCC at least until the COP-16 in Cancun, Mexico. Therefore, this still continues to be fought through international negotiations between developing countries and developed countries (Annex-1).

Strength of developing countries that still have large land and forests, as part of the forests of Indonesia, capable to be an event to improve forest management, reduce emissions and increase carbon stocks. Forest area in Indonesia for protected forest (HL) is covering 31.6 million hectares, forest conservation (HK) 5.23 million hectares, forest production (HP) 36.7 million hectares, and convertible production forest (HPK) 22.7 million hectares. The concept of sustainable management as indicated in Figure 1, which includes (1) reducing emissions from deforestation (forest conversion), (2) reducing emissions from degradation of forests (SFM practices), (3) inhibit the emission/ carbon conservation reserve (the role of conservation), and (4) increase in carbon stocks through ecosystem restoration, regeneration and rehabilitation of degraded forest areas).

The real weakness of good forest management practices is the practitioners (IUPHHK holders and managers) have not fully implement SFMstandards, both mandatory and voluntary. Not all of SFM regulation have been implemented yet including eco-friendly logging techniques (Reduced Impact Logging, 'RIL'), as well as law enforcement is still weak.

The strategy that will be developed in accordance with the policy and beneficial for the manager for carbon and the presence of other additional benefits, including forest fire control and forest restoration, will be intensified through the guarantee of long-term access to forest resources. Access which can be assured can be in the form of a long period of IUPHHK, right to utilize the forest products, the recovery by the private or the public. Regulation of the utilization of forest products should be based on realistic estimates of forest productivity (i.e. timber that can be harvested and carbon stocks) so that harvesting rules (restrictions on volume, cutting cycle) can maintain profit and reserves of carbon and wood.

Making forest officer more professional by providing the training will increase the ability of workers in performing the practice of good forestry and they should be given adequate compensation. Lattermost, market-based incentives for a better forest management, especially the certification of forest products by third parties, should be an important part of REDD+ program. Such incentives would help reduce carbon emissions, improve worker safety, protect biodiversity, and maintain a variety of other environmental services.

Betterment in forest management only possible if there is the right combination between incentives and law enforcement. With the cost of conversion of exploitation into management, REDD+ mechanism can provide financial and technical support for the pioneer manager. Manager can include logging companies or people who stop poor forest management and forest fires and increase carbon sequestration through restoration of the forest that has been damaged.

REDD+ strategies have been prepared by the task force of REDD+, but have not been specifically developed strategies for SFM within the framework of the implementation of REDD+. However, some parts of the strategies can be a significant reference in better forest management. REDD+ strategies and policies will serve as guidelines for the practitioners and the parties if they will implement REDD+ through a presidential decree, as well as to get the incentive funding.

4.4.2. Monitoring (MRV) and REL/RL on REDD+ Plan

Until now, the framework of MRV (through presidential regulation) or the implementation regulations as guidelines for MRV have not been unspecified yet. Similar with REL or RL. In the near future, after obtained data and information as well as through in-depth discussion of the implementation of DA in various provinces in Indonesia, the national MRV will soon be obtained.

4.2.2.1. Policy and Plan Criteria of MRV

An SFM policy can be a driving force for REDD+ and vice versa. Therefore, a plan to develop a system of MRV in the context of REDD+ activities need to be taken into account:

1. **International Requirements for MRV:**

   A plan should be guided by the principles and procedures for estimating and reporting emissions and carbon sequestration at the national level, as had been stipulated in the Guidelines and the IPCC Guidelines for reporting at international level (IPCC 2003, 2006); Specific matters concerning the implementation of REDD+ strategies that have been selected, for various different activities have different implications for MRV.

2. **Current National Ability for MRV:**

   A design should be based on judgments about the gap between the national forest monitoring systems that exist now and MRV system requirements demanded by REDD+; A plan needs to set a number of steps to create the institutional framework and implementation that effective, efficient, and sustainable for (a) measuring and monitoring at different levels, (b) supporting national policies and actions REDD+, (c) reporting and international evidence, (d) relating the number of MRV actions and the various transactions of MRV.

3. **Institutional Framework and Ability:**

   (a) **Coordination:** a high level of national coordination and cooperation mechanism for relating MRV forest carbon and national policies for REDD+, detailing and supervising roles, responsibilities and benefits, as well as other monitoring efforts;

   (b) **Measurement and monitoring:** a number of protocols and technical units to acquire and analyze the data related to forest carbon at the national and sub-national levels;

   (c) **Reporting:** a unit that is responsible for collecting all relevant data in an assessment center data, to estimate national and international reporting in accordance with GPC (Good Practice Guidance) IPCC and uncertainty assessment and development plans; and

   (d) **Proof:** an independent framework to prove the effectiveness of REDD+ actions in the long term at different levels and by different actors.

Participation in REDD+ requires a stronger emphasis in the terms of Measurement, Reporting, and Verification (MRV) than pre-existing in most national forest monitoring until now. Plan to build and maintain the ability to MRV should be in conformity with the principles and national requirements and the Intergovernmental Panel on Climate Change (IPCC), effective, efficient, and equitable. Without a clear relationship between MRV and REDD+ and policies from the beginning, then the compensation program which based on REDD+ will be ineffective.

MRV development should be able to accommodate the specific needs of a country, based on the principles of the IPCC requirements of national and international, as well as fulfill the criteria of effectiveness, efficiency and equity. MRV is a fundamental requirement for the implementation of REDD+. Therefore in many situations, it should receive a much higher priority than the monitoring of national forest that has done formerly. Currently, developing a robust MRV system is the key to participate in REDD+ and there are strong incentives for countries to implement it. Various funding mechanisms for disaster preparedness and

capability strengthening activities have begun to be formed to support countries in this process.

It must be recognized that the basic data and information of forest (and its monitoring capabilities) are required to support the development of national policy. Good understanding of the triggers and the process that responsible for changes in forest carbon and long-term effects are very important to establish policies and actions to support or stop it. In addition, the well planned implementation of REDD+ help to show the location that requires detail and accuracy and also help to determine priorities for MRV.

Develop a system of MRV is a process. MRV priority is to develop a plan to implement the sustainable MRV system and start it. The first step is to establish a gradual temporary system towards the MRV which then will be developed fully. This will enable and be an incentive for countries to take the first step. Step by step approach to encourage sustainable development towards a more accurate monitoring in the end will enable full compensation for REDD+ actions based on the results. Without a clear relationship between the MRV with a policy from the beginning, then any national plan to achieve compensation for REDD+ actions based on the results will not be effective.

4.2.2.2. Reference Emission Level (REL) or Reference Level (RL)

Set a Reference Emissions Level (REL) GHG is one of the challenging problems in implementing the REDD+ projects in several developing countries. A guideline in the manuscript that has been agreed in the UNFCCC is very limited. Attachment to the decision 2/CP-13 states that:

> *"The reduction or increase in emissions as a result of experimental activities must be based on historical emissions and were taken into account of national circumstances".*

The agreement among the experts on how to set a reference level does not exist. Santili et al., (2005) suggested using an average of 5 years and update it every 3 years. Another suggestion is to use an average of 10 years (for example, Brazil's recent commitment to reduce emissions). Global Observation for Forest and Land Cover Dynamics (GOFC-GOLD) recommends the use value of forest cover in 1990, 2000, and 2005, when better data is not available.

In the REDD+ mechanism, REL is very important to be set because it will show an enormous emissions that would occur if REDD+ activities are not carried out (as BAU, 'Business As Usual' or baseline) and the amount of emissions that will be reduce if implementing REDD+ (Wibowo, 2010).

Approach in Determining the REL. In general, the approach in determining the REL can be divided into three parts, namely: (a) approaches using emissions data from deforestation and forest degradation in the past (historical emission). In this approach, assumed that emissions from deforestation and forest degradation that will occur in the future if there is no intervention of REDD+ will follow the trend pattern of data availability and reliability of data or can also base on the length of the period of commitments of reducing emissions. Data with a shorter period but has high reliability is better than the longer period data but has low level of reliability.

Approach using historical emissions that have been adjusted (adjusted historical emissions). This approach assumes that the reference emissions from deforestation and forest degradation in the future similar with historical emission rate which adjusted for determinants

factors of changes of deforestation and forest degradation in the future (e.g. changes in population density, agricultural land need, gross domestic gross 'GDP' , etc.)

Approach that more considerate the future (forward looking). In this approach a reference emission levels expected by considering the changes in driving factors or barriers emissions from future use of land. Historical data can not be used at all. There are three concepts of this approach, namely: (a) modeling approach, i.e. the change in forest cover is projected into the future by using some of the predictions, for example GEOMOND (Petrova et al., 2007 in Wibowo, 2010), (b) REL is the fraction of forest, which is biophysically, economically, and legally status, will be at risk if there is no REDD+, will experience deforestation in the future, (c) the use of the critical limit (threshold value), namely by establishing minimum forest cover that must be maintained by a state, for example, 30 % or more. If there is no intervention of REDD+ then existing forest will be lost until it reaches the minimum limit.

1. Establishment of National REL Approach

Indonesia set REL at the national level with applications in sub-national or project level. This is to avoid the occurrence of leakage for REDD+ implementation in a particular area. Determination of REL for Indonesia based on historical emissions with considering the condition of the forests in the area concerned. This approach is used with the consideration that the rate of deforestation and forest cover varies widely across regions.

In a high deforestation rates area in the past, as some districts or provinces in Sumatra, REL is determined using historical emissions. While the area with low rate of deforestation and still has a large number of forests cover can use a modeling approach with considering historical deforestation rates.

2. REL Approach on Sub-national

Determination of REL is based on the level scale of REDD projects with high-detail data. Remote sensing and ground surveys approach should be done. Initial calculation of historical emissions and the length of time periods used in determining the magnitude of historical emissions are also still have no provisions. However, many countries are proposing to use the length of the minimum time period of 5 years or more, depending on availability and level of data accuracy and the time period does not pass through the end of 2005, the year when REDD+ mechanism discussed at the COP in Montreal. So, if the duration of the used data is five years, then the beginning of time calculation of historical emissions starting in 2001 until 2005 (Wibowo, 2010).

4.5. Market , Funding, and Benefit Distribution

Generally, the source of funding for the implementation of carbon forestry activities can be divided into two sources (Boer et al., 2009), namely (1) through carbon trading, both through the market which is not open (non-open market) and the open (open market), and (2) bilateral or multilateral cooperation. Funding through the non-open market can be from public funds such as funds of CSR (Corporate Social Responsibility), both national and international, or other public funds which are from the Forest Carbon Partnership Facility/ PCPF World Bank, UN-REDD Programme, or bilateral initiatives.

The mechanism of reducing emissions from deforestation and degradation or REDD+ can be run if all the involved stakeholders obtain benefit which equal with their sacrifices. In addition to the benefits which generated from REDD+ should be received by the appropriate stakeholders and able to directly handle deforestation and forest degradation. According

Wolenberg and Beginski (2009), the success of REDD+ very depend on the how far REDD+ can fulfill the needs of local communities and indigenous people. The success of REDD+ also depends on the connection between incentives and long-term development, the right to resources and participation of forest communities and the distribution of incentives for all stakeholders at various levels.

4.5.1. Carbon Market

The purpose of mitigation activities through non-open market not merely to reduce emissions and increase carbon stocks but also a support mechanism to provide compensation to the various activities that provide benefits such as global biodiversity, climate change, the availability of water supplies, and others. The system is already making its own internal audit mechanisms between fund managers and funders. Program developed by Bird Life for the restoration of forest production and Inhutani together Keep the Habitat entered into this category.

Funding through an open market is a Voluntary Market (VM) and mandatory market or market compliant (like CDM). Voluntary carbon market is a market where there trading of carbon credits that are not bounded by regulations and emission reduction targets of a particular country (non-compliance). The scale of this carbon market is much smaller than conventional carbon market, but has the potential to grow significantly. With regard to policies and related regulations, there are no regulations governing the voluntary forestry carbon market mechanisms. Some rules associated are: Law No. 41 Year 1999 was revised by Act No. 19 Year 2004 on Forestry; Government Regulation (PP) No. 6 Year 2007 concerning Forest, Forest Management Planning and Utilization of Forest Products; Permenhut No. 36/Menhut-II/2009 Concerning Licensing Procedures or the Business of Carbon Sequestration and Carbon Storage in Forest Production and Forest Protection, and Law No. 32 Year 2004 on Regional Autonomy.

1. **Mandatory Carbon Market (Compliance Market)**

   Mandatory carbon market currently is producing the commodities of carbon credits through two systems namely cap-and-trade and baseline-and-credit which is applied in the system of cap-and-trade. Some forms of a cap-and-trade are in the compulsory market (Kollimuss et. al., 2008):

   a. Emission Trading under the Kyoto Protocol. Developed countries (Annex-1) in the Kyoto Protocol has a quota of emissions (cap) which is about 5.2% below the 1990 emission levels in the period 2008-2012. So far, the Annex-1 countries must reduce emissions by 5.2% below its 1990 emission levels. Efforts to reduce these emissions can be done alone or with a trade allowance (allowable emission rate or AAU: Assigned Amount Units) between countries that allowed to have a high emission levels (surplus allowance) and the countries with low emission level or by buying carbon credits;

   b. EU carbon trading scheme (European Union Emission Trading Scheme or EU-ETS). In the Kyoto Protocol, developed countries (Annex-1) can join what so called "buble" and subject to their responsibility to reduce emissions as a single entity.

   Subsequently, REDD+ until now has not set as mandatory carbon markets by the UNFCCC. The possibility to that direction is very large because of the global community has been very hopeful, especially developing countries to become the focus of attention for the reduction of emissions and increase carbon stocks through REDD+.

2. Voluntary Carbon Market

Carbon credits which are generated from the voluntary carbon market called VERs (Verified or Voluntary Emissions Reductions). It should be noted that 17% of carbon credits which are sold into the voluntary market in 2006 came from CDM projects (Hamilton, 2007). So the carbon credits generated from CDM activities can also be sold into the voluntary market because of the buyers of carbon credits from CDM is in the voluntary carbon market.

This condition is not much different from the REDD+ in addition to become a compulsory scheme for the Annex-1 countries that can also be a voluntary market. This is mandatory to be done because in their country as emitter of GHG emissions which should reduce the emission at the developing countries and recorded as a contribution towards reducing emissions in the country. On the other hand, in the state sellers (REDD+ for developing countries) can be run by the voluntary market, meaning that REDD+ can be used by private and community for the interest of emissions reduction and enhancement of forest carbon stocks.

The purpose of the above activities are primarily to produce a certificate of emissions reductions which generated through the voluntary market (called Verified Emission Reduction, 'VER', or Voluntary Carbon Units, 'VCU', while the mandatory market CDM - the case for REDD+ - called Certified Emission Reduction (CER). This certificate will become a commodity that can be traded. Almost of the buyers of carbon services (VER/ VCU and CER) are also interested as an investor, but the percentage is not substantial. The differences of VER/ VCU and CER are, VER can not be used by the buyer country to be used as part of achieving emission reduction targets which have been set in the Kyoto Protocol, while the CER can. Now, there is growing stock trading carbon credits/ VER in which the owner of VER can do the transaction through the exchange. In general, VER prices are cheaper than CER, although not for all cases.

Volume of voluntary market after the Kyoto Protocol was effective, decreased sharply and measly. Currently, the voluntary market volume started to rise again after the issue of REDD/ REDD+ appears. Voluntary market has its own validation and verification process and no obligation to obtain authorization from the Host Party (country where the project activity implemented). Some players of world's voluntary market try to offer the REDD+ activities.

4.5.2. REDD+ Funding

Bilateral and multilateral funding programs can be in the form of aid or grants, soft loans and debt relief. At this time, funding that has been prepared by the Multilateral Development Banks like World Bank is a fund to help in preparing the implementation of REDD+ activities or activities of DA-called readiness and investment funds. One of the multilateral funds to support activities and investments is the FCPF (Forest Carbon Partnership Facility) and the Climate Investment Fund (CIF) which is managed by the World Bank. CIF is divided again into two, namely (1) Strategic Climate Fund (SCF) which there is the Forest Investment Fund/ Program (FIP) under it to support the implementation of REDD+, (2) Clean Technology Fund (CTF) to support and develop activities/ programs of emissions reductions or the use of low emission technology to become a larger scale such as in the agricultural sector. Bilateral funds are offered to Indonesia to support the implementation of REDD+ activities already in a large number, some of them are from German (KfW and GTZ through the KLN Bureaus of Ministry of Forestry), Australia, and other.

Financing of funding which mandated by the COP for example, through the provision of global forests will become the primary funding source in the second phase of strategy

implementation of national REDD+ (Wertz-Kanounnikof and Engelsen, 2010). Other ways to mobilize financing from the funds are sourced through a various approaches which dealing with the market, where revenues formulated from award auction of emissions in the countries listed in Annex-1 (EC, 2008, Parker et al., 2009). Appropriate financing for REDD+ performance can also be triggered by agreeing on a number of indicators or by setting the national reference level for forest carbon stocks so that changes in carbon stocks (or its substitute) from the policy implementation of REDD+ can be measured.

4.5.3. Benefit Distribution of Carbon Services

Related with the DA REDD+ activities either through the VM as well as bilateral and multilateral grants, there is no clarity associated with the treatment of emission reduction credits to be generated later, whether the results can be a direct payment to the practitioner of the activities or directly go through the central government. Based on Permenhut No. P.36/Menhut-II/2009, there has been an existing rules related to the distribution of payments, particularly from REDD+ activities through the voluntary market. However, the distribution of funds for REDD+ activities generally will be done through the central government (centralized) because of the REDD+ scheme is the state's commitment and the success of reducing emissions and increasing carbon stocks measured at the national level. One of them is the funding that will be granted by the government of Norway to the government of Indonesia through a bilateral agreement for implementation of REDD+ activities.

Rules related to distribution of credit payment results and also system of monitoring, measurement, and verification as well as an independent agency will review the implementation of REDD+ still prepared by the special team which appointed by the president under the coordination of UKP4 (Presidential Working Unit of Supervision and Control of Development).

Table 3. Distribution of benefits/ advantages of carbon trading mechanisms to the stakeholders

Permit Holder/Concession	**Distribution**		
	Government	**Community**	**Developer**
IUPHHK-HA	20%	20%	60%
IUPHHK-HT	20%	20%	60%
IUPHHK-RE	20%	20%	60%
IUPHHK-HTR	20%	50%	30%
Small-holder private forest (HR)	10%	70%	20%
Community Forest (HKm)	20%	50%	30%
Customary Forest (HAd)	10%	70%	20%
Village Forest (HD)	20%	50%	30%
KPH	30%	20%	50%
KHDTK	50%	20%	30%
Protected Forest (HL)	50%	20%	30%

Source: Ministry of Forestry (Permenhut No. 36/Menhut-II/2009)

Permenhut No. 36/Menhut-II/2009 manages a business license of REDD+ through carbon sequestration and storage. It's also regulated financial balance, procedures for the imposition, collection, deposit and use of revenues from REDD+. This regulation distinguishes between activities and storage of carbon sequestration in different forest types and kinds of business and also set the pattern of distribution of benefits to stakeholders, as shown in Table 3. Although this distribution can be debated again but at least the government has given clear

rules about the distribution of benefits that can be accepted by the government, communities, and organizers.

Furthermore, the Ministry of Finance will arrange financing incentives from various sources, both sources of international funds and mobilization of domestic funding. Transmission mechanism of international finance (international carbon market, global funds) can be through: (a) connecting the market, (b) electing a national fund, (c) the national fund in the state administration, and (d) the state's budget. Ministry of Finance may serve as the institution who receives the funds, but some non-governmental organizations (national and international) in several cases refused because it is loaded with long bureaucracy. Therefore, the role of good governance is important for improving the performance on REDD+.

4.5.4. Safeguard

REDD+ mechanism under the UNFCCC is a voluntary scheme that aims to contribute in reducing emissions from deforestation and forest degradation and increasing carbon stocks in developing countries for global climate change. This is done by setting up a framework for transferring resources and providing incentives in a cost-effective in efforts to avoid deforestation and forest degradation, and also promote the conservation, restoration, and SFM in growing tropical countries.

Those conditions are currently being introduced that the elements of value-added on REDD+ according to the initiative of the forest are: attention to the direction of Measurement, Reporting, and Verification (MRV) of potential emissions reduction of REDD+ activities; and safeguard of social, governmental, and environmental, among others, in order to fulfill some of the programs of REDD+ to ensure multi-stakeholder participation, respect for the rights of indigenous peoples, consistency with programs and national forestry and legislation, permanent, and non-conversion of natural forests (UNFCCC, 2010).

Several countries are developing with the help of developed countries and multilateral partnerships have begun to build programs and projects of national REDD+, but there are still in a small number to analyze the carbon stocks in natural forests that are managed by a business license in Indonesia. Formulation and implementation of REDD+ design with various implementation will start in 2012. This requires adequate technical MRV for changes in forest carbon (Wibowo, 2009), to analyze the socio-economic development of its impact on REDD+ on sustainable forest management, to attract financing schemes, and consideration of governance in order to facilitate REDD+ at the international, national, and local levels and also safeguards to achieve the success of REDD+. The question then is how to safeguard of REDD+ can be translated into a useful and comprehensive framework for real implementation in developing countries.

Safeguard in the sense of escort for the success of REDD+ will be based on performance without leakage. The role of each institution (government, multi-actor institution and multi-party) enables a higher success than a single organization. Government, in one hand, has a role in controlling and supervising of all activities and civil society also plays a role in maintaining the continuity and stability of forest carbon. If forests managed by the private sector (forestry) with the implementation of SFM, roles that delegated by government to the unit managers are to protect and secure the forest from a various disturbances. Responsibility of managers towards the sustainability of managers should emphasize the importance of the integrity of the managers and the public surrounds their working area to continue to work on reducing carbon emissions and enhancing forest carbon stocks.

4.5.5. Investment and Reinvestment for Forest Carbon Services Objective

In the scheme of analysis, investment and reinvestment are the5th and 6th part. For investment of the return of well forest function requires adequate funding for investment in the forestry sector because generally the investment in the forestry sector has risk and long cycle. Funds for investment can be derived from the mobilization of domestic funds, bilateral and or multilateral funds which are channeled in the form of grants or soft loans.

To manage the grant funds through bilateral and multilateral cooperation for the implementation of climate change, the government of Indonesia has established Indonesian Climate Change Trust Fund/ ICCTF (Bappenas, 2009). ICCCTF expected to play a role in managing the bilateral cooperation funds from various sources to support the implementation of climate change handling. In addition, the Ministry of Finance through the PIP (Government Investment Centre) also is currently designing an institution to manage bilateral or multilateral funds to support the investment in mitigation activities.

That effort is in line with the mandate in the Government Regulation No. 1 Year 2008 about the management of government investment funds to support the development of strategic sectors. Institution that currently designed will be named as PT. Indonesia Green Investment (Persero) which will act as operator and manager of investment funds in environmental friendly development sector and assist in the development of private investment through the mechanism of Private Equity Fund (PEF) and collective investment contracts (Siregar, 2009).

Investments for the government such as for forest conservation activities that prevent emissions from deforestation and forest degradation and increase forest carbon stocks can be recorded in the form of provision of technology, improvement of habitats for High Conservation Value Forest (HCVF), restoration of forest ecosystems, periodic comprehensive forest planning, enrichment plants, increase in the local economy in and around forests, and others. For private, existing investments such as increased of forest productivity through intensive silviculture techniques (Silint), the security guard the forest from illegal logging, forest encroachment, enrichment plants, and regeneration of degraded areas. For society in the form of investment in Community Forest (HKm), non-timber plant regeneration (rattan, latex of jelutung, resin, gaharu, and etc.) in conservation areas and protected areas and conservation including of small-scale forest ecosystem restoration.

Furthermore, the re-investment is intended to restore the function of forest after the first cycle for the purpose of upgrading and backup storage of carbon, reducing emissions from deforestation and forest degradation. For natural forests can occur for 30 years (first cycle of Silint) or restoration of damaged forests, and Industrial Plantation Forest (HTI) can have 5-6 years cycle of period, but mainly for crop innovation to fulfill the demand for wood energy (bio-energy and bio -fuel) and the enhancement of forest carbon stocks through rehabilitation of degraded forests. For community forest (HKm), community-based plantation forest (HTR) and the small-holder private forest (HR) vary widely depending on the type of cultivated crops for the purpose of carbon sequestration in order to increase forest carbon stocks.

4.6. Net Carbon Balance

Net carbon balance is the difference between the reduction of carbon emissions (decreasing CO_2 emission) and an increase in carbon storage & sequestration (increasing removal CO_2). The ways to lower the carbon emissions from deforestation and forest degradation have been described in previous chapters. On the other hand, various methods

are used for the sequestration and storage of carbon in an effort to maintain and enhance forest carbon stocks. All of the efforts are intended to defend and build the forest's capability in reviving their function as a life support and carbon sink that can't be replaced. In other words, the forest as an effective "storage house of carbon" (carbon storage), is a magnet for the Annex-1 countries for competing uses of forest environmental services as compensation for the exploitation and industry in the country that emits greenhouse gases. Through various schemes, either through voluntary carbon markets and compulsory carbon markets (A/R CDM, voluntary carbon markets, and REDD+) should be Measured, Reported and Verified (MRV).

In addition to forests, peat land is also a very effective carbon sink. The conditions must be maintained either through the native ecosystem protection and water management systems in order to restrain carbon emissions from peat soil to the atmosphere of the earth. Pioneering bilateral agreements (LoI) between Norway and Indonesia have provided a good signal, on the one hand, about the international commitment to reduce GHG emissions through a new licensing of moratorium on primary natural forest management and peat lands in Indonesia. However, there are group of economic builder who refuse LoI because they consider that the incentive funding will be disbursed by Norway is too small compared to the sacrifice of Indonesia who are currently developing.

Benefit of carbon and additional benefits of good forest management including forest fire control and forest restoration, will be intensified through the guarantee of long-term access to forest resources. Guaranteed access can be in a form of a former forest management permit or permit to utilize the forest (forest utilization rights) or by private or public ownership. The suspension conducted by the agreement that has been mentioned above was limited to the grant of a new license, not to the permits that have been obtained by the holder of timber utilization permit (IUPHHK), especially at primary natural forest and peat land management. Various regulations have been issued related to emission reduction and enhancement of forest carbon stocks, both of which concerned technical forestry (Law No. 41 Year 1999 on Forestry and derivatives of PP) and space utilization of forest area through Law No. 26 Year 2007 on Spatial Planning and derivatives of the PP. Other laws such as Law No. 5 Year 1990 on Conservation of Natural Resources and Ecosystem, Law No. 32 Year 2009 on the Protection and Management of Environment and derivatives of the PP) has given the strengthening of legal certainty. However, in practice, legislation is only as a norm that sometimes less adhered to by the actors in the field.

Table 4. Five elements of REDD+ and various efforts that can be done (UNFCCC, 2010)

		Activity	Efforts that can be done
Reducing Carbon Emission	1	Reduce deforestation	Slowing the rate of logging by using clear cut system
	2	Reduce forest degradation	Reducing the negative impacts of selective logging, preventing forest encroachment, fire or fuel wood collection.
	3	Conserve forest carbon stocks	Protected the current existing forest
Increase sequestration and storage of carbon	4	Sustainable management on forest	Development of logging cycle from 35 years to 60 years to provide more carbon for the re-growth of forests.
	5	Increase forest carbon storage	Regeneration and rehabilitation of forest (but not aforestation and reforestation)

Source: Antonio G. Antonio G. M. La Viña and Lawrence G. Ang (2010)

Legislation of the use of forest management (according to Law No. 41 of 1999 the term is utilization) should be based on the estimation of forest productivity reality (i.e. harvested timber and carbon stocks) so that harvesting rules (restrictions on volume, cutting cycle) can retain the advantages and carbon stocks and wood. Management of sustainable production forest referred to certain aspects of long-term forest management, production aspects, social aspects, and aspects of ecology and also health aspects of the company. Past policy which considered not achieved as expected is a meaningful learning for the efforts to reduce carbon emissions and enhance the forest carbon stocks. The main factors are for improving forest management policy, reduce emissions and increase carbon stocks among others:

(a) assist the development of certification by third parties;
(b) require the use of environmental-friendly logging techniques (Reduced Impact Logging, RIL);
(c) train loggers and reward appropriately;
(d) control of forest fires;
(e) develop incentives to increase carbon stocks in forests that have been logged, burned, and destroyed;
(f) improve land tenure security and access to resources for forest owners and holders of IUPHHK;
(g) improve the efficiency of the sector through appropriate taxation;
(h) formulate policies of incentives or market instrument to improve the management.

Making the forest officer to be more professional by providing the training will increase the ability of workers to implement the good forestry practices and they should be given adequate reward. The community also needs to be balanced with assistance to achieve SFM certification for community-based forest management, namely HKm, HTR, HR, HD/HAd, at once directed to apply for climate change mitigation schemes, particularly REDD+.

Market-based incentives for good forest management, particularly forest products certification by third parties, should be an important part of REDD+ program. Such incentives would help reduce carbon emissions, improve worker safety, protect biodiversity, and maintain a variety of other environmental services.

Improvement in managing the forest area is only possible if there is the right combination of incentives and enforcement. With the cost of conversion of exploitation into management, REDD+ mechanism can provide financial assistance and technical for the “pioneer" manager. This manager can include into the company manager of logging which using IUPHHK-HA system and HTI or community with IUPHHK-HTR systems, HKm, HD/ HAd or HR which discontinue the poor forest management and forest fires and continue to perform actions that increase carbon sequestration, like through regeneration or recovery of the forest that has been damaged, and rehabilitation of critical land. Policies and regulations related to resource management for emissions reduction and enhancement of forest carbon stocks must refer to the principle of effective, efficient, and equality, as well as provide additional benefits to the success of REDD+ and or other schemes, whether mandatory or voluntary.

5

CARBON SEQUESTRATION / STORAGE AND REDD

Regulation Analysis of carbon sequestration and storage (Rap / Pan Carbon) and REDD intended to determine the Rap / Pan Carbon and REDD's regulatory framework gaps. From these gaps analysis may note things that need to be done within the framework of the implementation Rap / Pan Carbon and REDD.

As a **first** step, an analysis of the contents of the rules concerned, then the **second** stage will analyze the Rap / Pan Carbon and REDD's framework and then the **third** step is to analyze the gap between the regulations and framework Rap / Pan Carbon and REDD. There are three regulations that directly related to increased carbon storage and sequestration (Rap / Pan - Carbon) and REDD, namely: 1) The Minister of Forestry Regulation no P.36/Menhut-II/2009 regarding Licensing Procedures of Carbon Sequestration and / or Carbon Storage's Business in Forest Production and Protection Forests; 2) The Minister of Forestry Regulation no P.68/Menhut-II/2008 regarding Implementation of Demonstration Activities for Reducing Carbon Emissions from Deforestation and Forest Degradation (DA-REDD) and; 3) The Minister of Forestry Regulation no P.30/Menhut-II/2009 regarding Procedures of Reducing Emissions from Deforestation and Forest Degradation (REDD).

5.1. Content analysis

The analysis will be performed on the contents of the rules (content analysis) intended to determine the aspects of the regulations being studied. In this case, the regulations that directly related to increasing Rap / Pan Carbon and REDD as described above. For simplicity, the contents of the regulations that were analyzed will be grouped into aspects of a common scheme used to evaluate the environmental service reward schemes, which include:

a. Regulatory context, which in this study consist of: restriction, the background and goal of the regulation.
b. Structuring role of the parties, in this study consisted of the project developer, the requirements of developers, government agencies role, and the locations of project implementation.
c. Finance and fund management, which in this study consisted of: the value of environmental services, benefits distribution, fund management, marketing, and financing.
d. Scheme Implementation, which in this study consisted of: procedures for licensing, permit time period, project activities, and guarantee the sustainability of the project.
e. Verification, sertification, monitoring dan evaluation.

Detailed analysis results are presented in Table 5.

Table 5. The result of Rap / Pan Carbon and REDD Regulation and Policy Analysis

Policy Scheme	P.36/2009 (UP Pan/Rap Karbon)	P.68/2008 (DA-REDD) and P.30/2009 (REDD procedure)	Analysis
CONTEXT:			
• **Scope**	One type of commercial utilization of environmental services in production forests and protected forests	Prevention and reduction of emissions from deforestation and forest degradation in order to strengthen forestry governance	• Orientation is SFM • Regulation Orientation is to set the permission • The product / outcome of project development is the reduction of carbon emissions which is the environmental services • The economic characteristics of environmental services is as non-excludable services
• **Background**	Sequestration and / or carbon storage is an environmental services from forests (HL & HP) carried out through IUPJL	To improve sustainable forest management activities in order to reduce emissions from deforestation and forest degradation (REDD), it is need to define the REDD Procedures	
• **Goal**	Provide guidance to licensing IUP Rap / Pan-Carbon	Provide locations direction, actors, requirements, application procedures , assessment & licensing agreement, term, developers rights & obligations, REL determination, verification and certification, and incentives distribution	
THE ROLE OF THE STAKEHOLDERS:			
• **Project developers**	Individually/ Cooperative/ State –owned Enterprises/Private, License holder of IUPHHK-HA/HT/HTR/RE; IUPK-HL; IUP-HKm; Management of Village Forest	• **National Entity:** License holder of IUPHHK-HA/HT/HTR/RE; IUPK-HL; IUP-HKm; Management of Village Forest; Forest Management Unit of Production/ Protection/ Conservation Forest (FMU Pr/Pt/Cs); Head of National Park; small holder private forest. • **International Entity:** Government; Private Body; international organizations/ foundations/ privates donors of REDD	Developer's characteristic: • Business Entity (State-owned Enterprises, Local Government Owned Enterprises, and Private Business) • Community based entities such as adat's forest and private forest • Government based entities
• **Requirements**	• Copies of IUPHHKHA / HT / HTR / RE; IUP-HL; IUP-HKm; Village Forest licenses • Proposal of Carbon Sequestration and / or Carbon Storage activities	• Copies IUPHHKHA / HT / HTR / RE; IUPK-HL; IUP-HKm; Village Forest licenses; formation of FMU; determination / designation of conservation forest (having a legality control / management areas) • Obtain a recommendation from the Regional Government, with the exception of FMU (Pr / Pt/ Cs) • Meets criteria of location. • Have an implementation plan. •	Due to the nature of regulation is "licensing", then the detailed requirements are necessary. Would be different if the nature of the arrangement is the "registration and recognition" of the project developed, the requirements and procedures can be further simplified.
• **Government**	• Minister of Forestry • Director General of Forest	• Minister of Forestry • Directorate General of	• Involving the government as a guarantor of the right is still required

	Utilization • Director General of Forestry Planning • Proposal Evaluation Team Director (CPC, PHKA, Planning, Local UPT) • Regent Head of the Forest Service • Forest Service Proposal Evaluation Team (Forestry services, the entire UPT MoF in the area)	Forestry Planning • REDD Commission (multi-stakeholders) • Governor/'Bupati'	• Government involvement should be equipped with rules that can minimize transaction costs • Capacity building at various levels of government • Who will be the conductor? • REDD Commission as a liaison / bridge national – sub-national level?
• **Locations**	• The area of production forest (all or part of the forest area IUPHHK-HA/HT/HTR/RE) • The area of protected forests (including HKm & HD)	• The work area IUPHHKHA / HT / HTR / RE; IUPK-HL; IUP-HKm; Village Forest management; KPH (P / L / K); Forest conservation; Forest customary forest rights • Can be combined in one unit of REDD	Location of project development: • State forest region domination • Forests • Forest Peoples Development projects Rap / Pan-Carbon and spatial allocation of REDD wants to be a definite forest (fix), the implication demanding reliability and adherence to the Spatial
FINANCING AND MANAGEMENT FUNDS			
• **The Value of Environmental Services**	Revenue from the sale of carbon credits that have been certified and paid based on the ERPA (emission reduction purchase agreement)	Based on Market's Mechanism	• The benefits of REDD should be greater than benefits from cutting the forest • Keep accurate knowledge of what should be counted as project development costs
• **Benefit Distributions**	• Government: 10 to 50% as non-tax revenues • Community: 20 to 70% • Developer: 20% to 60%	• Not yet regulated • The part of state revenues are derived from the implementation of REDD is used as guarantee for the implementation of REDD at the national level	• The government wants a share of income as a Non-Tax State Revenues (non-tax revenues) from the project development
• **Funds management**	Trust Fund administered to people with village government and developers facilitated by Forestry Extension	Not yet regulated (governed by its own legislation)	Management of the funds committed by the institution Trust Fund for Rap / Pan-Carbon, while for REDD undetermined yet
• **Marketing**	• Voluntary carbon markets nationally and internationally • VER certificates can be sold to the buyers directly or through a carbon exchange market	National entities obtain payment from international entities	
• **Financing**	Financing: own funds, CSR, donors	• International entities use REDD certificates as part of fulfillment of developed countries emission reduction commitments • Certificates for REDD carbon trading after 2012 associated with the emission reduction commitments developed countries implementation	

IMPLEMENTATION			
• **Licensing Procedure**	• Permission granted by the Minister, unless the HTR by the Regents. • Procedure: 14 steps; involving 6 institutions (see figure 8)	• Permission granted by the Minister, unless the HTR by the Regents. • Procedure: 10 steps; involving 5 institutions (see figure 9)	• Permission prone to high transaction costs • There is a tendency in the same location there are a variety of business license
• **License Period**	25 years and can be extended, but not exceed the period of license	30 years and can be extended	• Compliance assurance efforts conducted by the right of licensing mechanism for certain period of time • Land as a place to grow forest vegetation remain the property of the State, while the developers 'only' as 'tenants'
• **Action Plan**	FOREST PRODUCTION: • Carbon Sequestration: planting & maintenance of the forest; Enrichment; Strip Planting; increased productivity • Carbon Storage: felling cycle extension & renewal cycle of plants; environmentally friendly harvesting techniques; maintenance & security of inter-track TTJ / cylinder; expansion, protection & security of protected areas; PROTECTED FOREST: • Similar with listed above, except for logging	• Conduct forest management activities due to implementation of REDD. • Establish a reference emission prior to the implementation of REDD. • Conduct monitoring in accordance with the plan. • Delivering a report monitoring results to the Minister through the Commission on REDD.	The regulation regulate the obligations, in the mean while rights assurance mechanisms and dispute resolution has not been set
• **Sustainability assurance**	Developers can insure the project Rap / Pan-Carbon	REDD Commission periodically submit reports to the Minister and the implementation of REDD Focal Point of United Nations Convention on Climate Change, then reported to the United Nations Convention on Climate Change.	• Guarantee the sustainability of the project is based on reports • REDD Commission has very strategic position
VERIFICATION, SERTIFICATION, MONITORING DAN EVALUASTION			
• **Verification and Certification**	• Verification is conducted by independent appraiser • Verification results is registered to the National Registration Agency for VER (verified emission reduction)	• REDD Commission commissioned the Independent Assessor to verify • REDD Commission issued a Certificate of Carbon Emission Reduction • REDD Commission asked the National Accreditation Committee (KAN) to conduct accreditation of independent assessors (temporary)	Position of REDD Commission and Independent Appraisal body is very strategic

5.1.1. Regulation Context

From the context of regulation, this regulation seems oriented to regulate the licensing of activities implementation through Business Permits for Carbon Seq/ Stor Utilization (IUP Rap / Pan Carbon) and provide direction for locations, actors, requirements, procedures for application, appraisal & approval of permits, duration, rights & obligations of the developer, setting REL, verification and certification, and distribution of incentives in the context of REDD. Project development objectives are to reduce carbon emissions which are the environmental services through sustainable forest management. According to the characteristics of its economy, this activity are basically aimed to provide environmental services of Carbon Seq/ Stor and reduced emissions from deforestation and forest degradation.

These characteristics indicate that the services generated from these activities are non-excludable services. In many instances, the services of such an environment can be enjoyed by many people together and it is difficult to exclude others who did not participate produce it as well. In such circumstances, private parties would not be interested to produce it (providing supply), unless there are adequate incentives.

5.1.2. Structuring the Stakeholders Role

Project developer of Carbon Seq/ Stor and REDD consist of (1) business entities like State Own Enterprises, Local Government Own Enterprises, and Private; (2) community based entities such as adat's forest and private forest; (3) government based entities like Forest Management Unit (FMU); and (4) international organization/foundations/privates donors. Requirements for development are quite strict and complex due to the nature-oriented licensing arrangement, so that detailed requirements are necessary. Would be different if the nature of the arrangement is the registration and recognition of the project developed, the requirements and procedures may be further simplified.

Many government agencies have played a role. There are at least 8 (eight) government agencies are involved in Carbon Seq/ Stor projects, whereas for REDD program there are 4 (four) institutions including REDD Commission as multi-stakeholder institution. Government involvement seems to be needed as the guarantor of the rights of Carbon Seq/ Stor or REDD transactions, noting that government involvement should be complemented with a rule that minimizes transaction costs and provider incentives in particular on the project development that carried out by the private sector (including community / farmer).

From the total area that can be developed, the dominant location of development project located in State forest areas, only a few are located on Smallholder Private Forest and Communal (adat) Forest. This is caused by the spread of Indonesia forest area which is dominated by State Forest area of ± 130 million ha, and private forest (± 2.8 million ha) while the area of Communal (adat) Forest is still unknown. The development of Carbon Seq/ Stor and REDD project requires a security of spatial allocation for forest, the implication is demanding a reliability and adherence to the Spatial.

5.1.3. Financing and Fund Management

The Carbon Seq/ Stor environmental services value based on carbon credits sale that have been certified and paid according to the ERPA (Emission Reduction Purchase Agreement), while for REDD is based on market mechanisms. Whereas for Carbon Seq/ Stor markets uses the carbon markets which the market is national and international voluntary markets. With that markets mechanism, VER certificates can be sold directly to buyers or through the carbon

stock market while for the financing can be derived from its own funds, CSR and donors. Meanwhile, for REDD, national entities is obtaining payment from the international entities. The international entities using REDD certificate as part of the fulfillment of emission reduction commitments of developed countries. From the rule seems to be critical that the value of rewards of Carbon Seq/ Stor and REDD should be greater than the benefits from cutting down the forest (opportunity costs concept). Therefore, it needs an accurate knowledge of what should be considered as a project development costs.

Benefit Distribution from the REDD development apparently not regulated in the Forestry Minister Regulation P.30/2009 and P.68/2008, but the government has planned to take advantage of some government funding for this activity which is part of the government revenues that derived from the implementation of REDD and will be used as guarantee for the REDD implementation at the national level. Meanwhile, the Carbon Seq/ Stor benefit distribution has been more defined because according to the scheme which was developed, the government would obtain 10% - 50% from the carbon sale as non-tax revenue; corporate developers will get 20% - 60% and community-based developers will receive 20% - 70%.

The distribution shows that the government wanted some income as a Non-Tax State Revenues (non-tax revenues) from the project development. This rule becomes a dilemma, when on one hand in producing non-excludable services require incentives, on the other hand, the government requires an additional income of non-tax revenues from the production of such non-excludable services.

5.1.4. Implementation Scheme

Permits for the project development implementation is administered by the Minister, for Carbon Seq/ Stor program require 14 steps and involves 6 institutions (Figure 8) for the license period up to 25 years and can be extended, but not exceed the period of forest utilization business license. Whereas for REDD require 10 steps and involves 5 institutions (Figure 9) for a license of 30 years and can be extended. Given these licenses will have a risk which is at the same location there are many business licenses and are vulnerable to the possibility of high transaction costs.

The activities can be carried out on the carbon sequestration projects is planting and maintaining forests, enrichment planting, strip planting, and increasing forest productivity. For the Carbon Storage may be consisted of an extension of the cutting cycle and extension of the plantation rotation, environmental friendly harvesting techniques, maintenance and securing inter-lines of the Cutting and Line Planting / Intensive Silviculture system, expansion, protection and securing of protected areas. While for the protected forests all these activities can be done, except for logging.

To ensure the sustainability of the program, the Carbon Seq/Stor program development can be insured. While on REDD, program sustainability is guaranteed by using the reporting mechanisms which is the Commission REDD periodically submit the implementation of REDD reports to the Minister of Forestry and the Focal Point of United Nations Convention on Climate Change and then reported to the United Nations Convention on Climate Change.

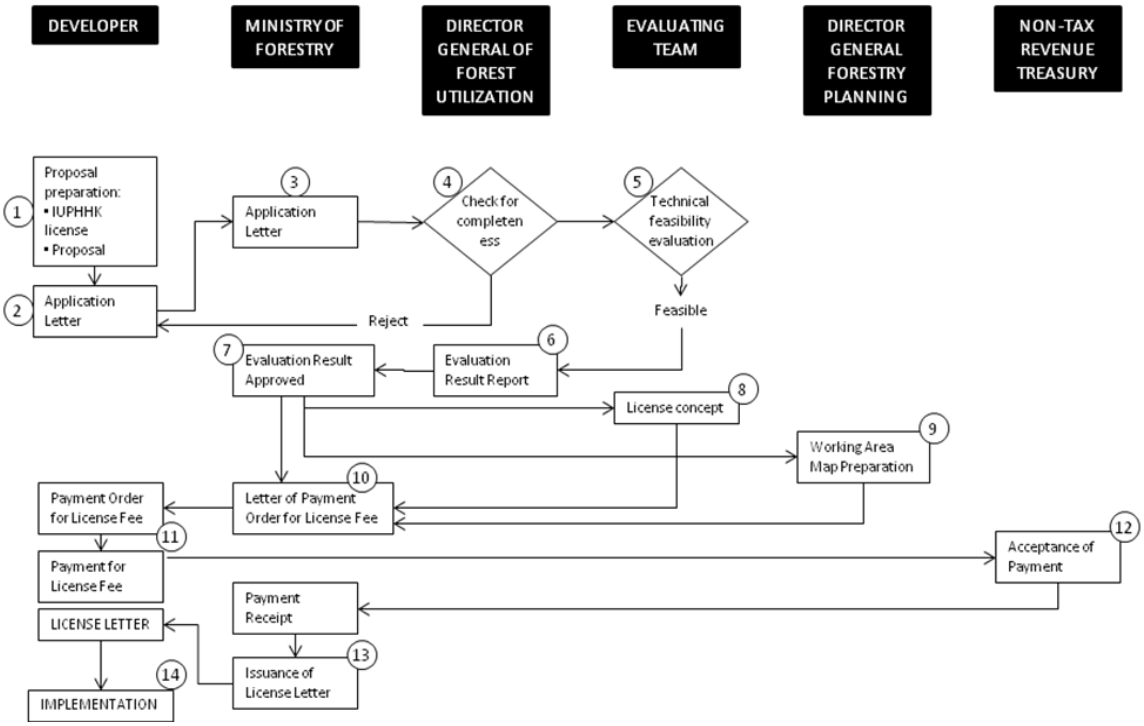


Figure 8. Mechanism of application for development permits of Carbon Seq/Stor Project (Minister of Forestry Regulation No. P.36/2009)

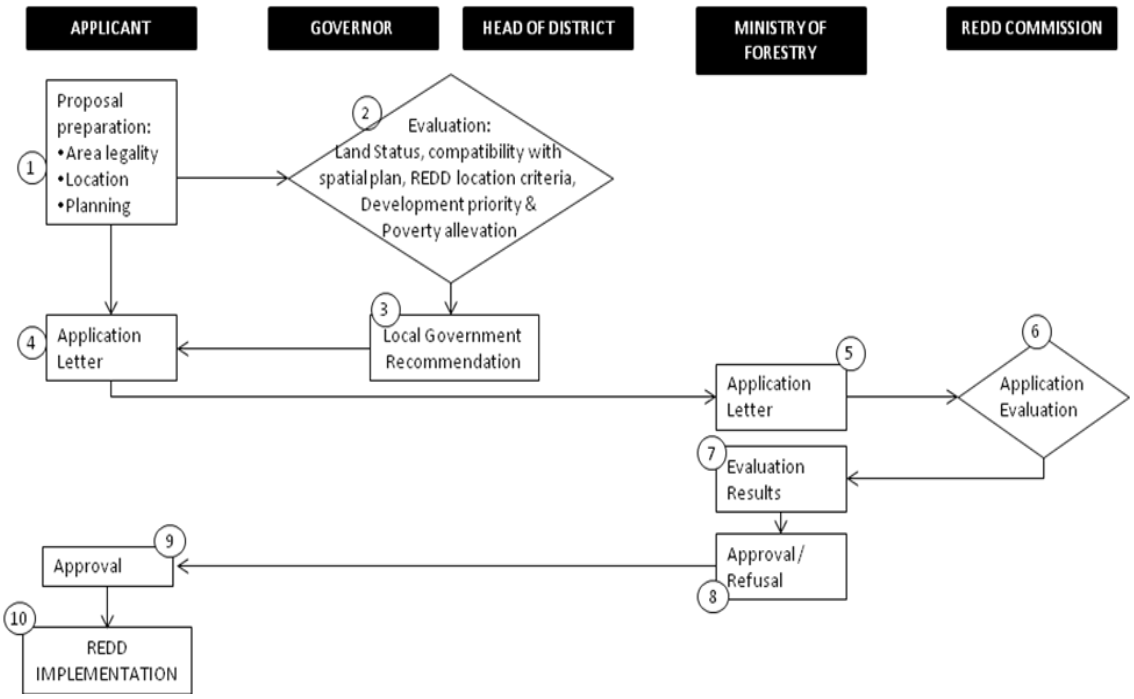


Figure 9 Mechanism of application for development permits of REDD (Minister of Forestry Regulation No. P.30/2009)

5.1.5. Verification and Certification

The Carbon Seq/Stor verification conducted by an independent assessor agency and then the result is registered to the National Registration Agency to obtain VER (verified emission reduction). While the REDD mechanism for verification and certification follow the steps below:

a. REDD Commission commissioned the Independent Assessor to verify.

b. REDD Commission issued a Carbon Emission Reduction Certificate.

c. REDD Commission asked the National Accreditation Committee (KAN) to conduct accreditation of independent assessors (temporary)

5.2. Rap/Pan-Carbon and REDD success and Framework

REDD is a funding mechanism to support the implementation of the terrestrial carbon environmental services activities through international negotiations with the aim to reduce emissions from deforestation and forest degradation through a series of sustainable forest management programs and forest carbon stocks enhancement programs in developing countries. It shows that for development The Carbon Seq/Stor and REDD are emerging the connections and relations of the stakeholders that involved. The implications are requiring institutions that will be able to directing the behavior of stakeholders to achieve the common goal that have been agreed / set. With such definitions, to support the success of REDD, it seems require:

1. A guarantee of continuity / sustainability of forest resources both in order to reduce carbon emissions as well as carbon sequestration and storage.
2. Requires a serious effort to reduce the risk of easily state forest land to become open access resources, according to the conditions of Indonesia land use distribution, which is dominated by the forest area which is more than 60%, it seems that the state forest land became the main pedestal as a location for the Carbon Seq/Stor and REDD implementation.
3. Requires big efforts to prevent leakage of both domestic / local in implementation around the site as well as leakage to other State due to the emergence of economic opportunities arising from the impact of reduced timber production.
4. Governments have a strong role in the implementation of Carbon Seq/Stor and REDD.
5. Organization is required to run the agreement, the guarantor of rights, settlement of disputes among stakeholders involved and conducting the measurement, reporting and verification (MRV).

5.3. Gap Analysis Between Regulation and Successful Requirements

From study of regulations and requirements for successful implementation of Carbon Seq/Stor and REDD aforementioned, then will performed the gap analysis between existing regulations with the necessary requirements to support the success of the implementation.

From the gap analysis, can be derived several alternative solutions so that Rap / pan-Carbon and REDD can be implemented in. The results of gap analysis and alternative solutions are presented in Table 6.

Table 6. Gap Analysis of Rap / Pan Carbon and REDD Regulations and the Solution Alternatives

Ultimate goals: • Preventing the deforestation and forest degradation • Reducing carbon emissions • Poverty alleviation		**REDD Characteristic Framework**					**Solution Alternatives Analysis**
		Forest Resources Sustainability Assurance	**Focusing in State Forest Areas**	**Prevention of leakages**	**The governments role at all level is very dominant**	**The needs of the management organization**	
Policy Scheme	**Regulation context**	1. The efforts to promote Sustainable Forest Management	x	x	2. Regulation focus on the permissions become vulnerable to transaction costs and licenses overlapping	x	• The status of regulation: 'registration' for REDD efforts and 'appointment' for the Conservation and Protection Forest area, rather than licensing
	Structuring Role of the Stakeholders	3. Contractual arrangement between the government and rights holders have not been able to direct the holder to behave sustainably	x	4. High dependence of domestic people to forest resources to meet the needs for food, clothing and housing 5. Reciprocity Agreement with neighboring countries does not exist.	6. Leading sector not yet defined due to ego sectoral 7. Lack of coordination intra and inter sector as well as between levels of government	8. Could DNPI positioned as a normative body? 9. REDD Commission which can function as a liaison between the national and sub-national has not been formed 10. The absence of the guardian process (back stopper) at the implementation level is often the cause of the failure	• Revision in the contractual arrangement in state forest areas are listed as the location of the implementation of REDD • Internalization REDD program to all stakeholders • The need for collective action with partner countries in mutual agreement (reciprocity) in wood consumption • To reduce the resistance at the beginning activities, Forestry can be played as a leading sector with the REDD Commission acting as a back stopper • Implementation of activities coordinated with the National Council on Climate Change (DNPI), but structurally and financially under the MoF • Working Group on Climate Change Forestry can be used as an embryo and / or appointed to prepare the REDD Commission • The REDD Commission may form organizations in the region, for the early stages at the level of priority Province

Ultimate goals: • Preventing the deforestation and forest degradation • Reducing carbon emissions • Poverty alleviation		**REDD Characteristic Framework**					**Solution Alternatives Analysis**
		Forest Resources Sustainability Assurance	**Focusing in State Forest Areas**	**Prevention of leakages**	**The governments role at all level is very dominant**	**The needs of the management organization**	
	Financing and Fund Management	11. Rationality determination of 'price' for business entity-based as developer is the opportunity costs; community based entities is moral suasion, besides opportunity costs, and for government entities is cost effectiveness	12. Although REDD activities are in areas of State forests, but the results / products of REDD has the characteristics of non-excludable services	13. The benefits of REDD is able to improve welfare of the parties involved?	14. Basically government has responsibility to produce public goods and services. Is it ethical to generate government income (non-tax revenues) from the community efforts in producing environmental services?	15. Credible, transparent, accountable, and responsive management institution is needed. What kind of trust fund institutions needed?	• Although the determination of 'price' is ultimately determined by the negotiation process (following the market mechanism), but assessment guidelines and pricing policy as the basis for negotiations are needed • Distribution scheme is determined by the characteristics and situation of the resources, social and economic community. The implication: no need to be fixed as stated in the provisions of Ps 17 Permenhut P.36/2009, but based on the negotiations at the unit level implementation. • The Commission of REDD facilitate the scheme of benefits distribution among the parties involved. • The management and disbursement of funds committed by the Trust Fund institution. • Trust Fund may take the form of Public Service Agency (BLU)
	Implementation	16. Certainty of rights and access need to be clarified 17. The rights need to be recognized by society and protected by government	18. Low public recognition for the state property 19. State Ownership is often considered as secure right, even though the facts show	21. Mutual benefits cooperation among government – developer – community has not defined	22. Government involvement should be equipped with rules that can minimize transaction costs	23. Rights and obligations set out in P.30/2009 not explain the mechanisms that guarantee the rights between the parties 24. The mechanism of instructor role for institutional strengthening of the	• Internalization of REDD programs to the community need to be done early, especially to gain local legitimacy • Mutual cooperation between governments - developers - community has to determined based on the characteristics and situation of forest resources, community social and economic • Need additional explanation (in P.30/2009) about the mechanisms that

Ultimate goals: • Preventing the deforestation and forest degradation • Reducing carbon emissions • Poverty alleviation		REDD Characteristic Framework					Solution Alternatives Analysis
		Forest Resources Sustainability Assurance	**Focusing in State Forest Areas**	**Prevention of leakages**	**The governments role at all level is very dominant**	**The needs of the management organization**	
			otherwise (the dilemma of State property) 20. Forest Management Unit (FMU) at site level has not established			community has not been established	ensure the rights and settlement of disputes between the parties to build consensus • REDD Commission may acts as a guarantor the rights and dispute resolution • As a reference implementation of good practices should be arranged the scheme of Good Forestry Governance (GFG)
	Verification and Certification and Monitoring and Evaluation	x	25. Ability and legitimacy of the REDD Commission verification, certification, monitoring and evaluation conducted in REDD implementation by the government	26. Low reliability and adherence to the spatial planning	x	27. Guarantee public participation in the verification, certification, monitoring and evaluation by REDD Commission has not been set	• REDD Commission commissioned the Independent Assessor to verify • REDD Commission issued a Certificate of Carbon Emission Reduction • REDD Commission asked the National Accreditation Committee (KAN) to conduct accreditation of independent assessors (temporary) • To ensure public participation, REDD Commission needs to involve the public • Monitoring and evaluation carried out by Indonesian REDD Monitoring Alliance, which is multi-stakeholders institutions including the National Forestry Council (DKN) • Implementation of monitoring and evaluation (feedback) performed by the developer and supervised by the Regional REDD Commission • Conduct institutional review of FMU as an instrument of REDD implementation

6 Conclusions and Recommendations

6.1. Conclusions

(1) The practice of sustainable forest management (SFM)) is multifunctional; in which in comprises of economical function in producing products and services such as timber and non-timber products, increasing the welfare of the local people as its social function, and maintaining hidro-orological function, preserving the flora and fauna as the ecological function. The practice of SFM being inserted in REDD+ scheme is seen as an action to decrease the green house gasses (GHG) emission and increasing the carbon supply in order to mitigate the climate change. The carbon of increase of emission by the degradation of forest caused by logging, forest exploitation and burning, and other causes which damaged the forest could quickly be absorbed and contained on a period of time with plants enrichment or intensive sylviculture technique (Silint). Therefore, progressive yield of wood in which means the forest's carbon supply increasing and causing the net carbon balance/sink positive, is expected to happen.

(2) In line with the law and regulations, the activity of carbon sequestration / storage (Rap/Pan) and lowering GHG emission that can be done especially in sustainable forest management are a) delaying the gap between logging, b) enrichment planting, c) eradication of illegal logging, d) ecosystem restoration, e) aforestation/reforestation in the forest area, and f) conservation on high-valued forest area.

(3) Efficient carbon sequestration / storage could be done by implementing environmental friendly logging technique (reduced impact logging, RIL), optimal timber utilization (carbon sink), and implementing good forest management on natural and plantation forest, community forest, community plantation forest, and village forest.

(4) The Practice of SFM, especially for plantation forest business (big scale such as HTI, and small scale such as HKm, HTR, HR, and HD) which stressed on sequestration / storage forest carbon to increase carbon supply, which done by enlarging plantation on degraded areal, not changing natural forest into plantation forest, is very possibly receiving the climate change mitigation fund incentive.

(5) Credible management institutions become the foundation of good governance in the implementation of the whole scheme of climate change mitigation in Indonesia. The institutions consist of: 1) forest management unit (FMU), 2) funding management (trust fund) unit; 3) multi-actor and multi-sector party for small scale forest industry; 4) local government, national government, and international government which interested in climate change mitigation and adaptation.

(6) Policy which combined various sylviculture system (multisystem sylviculture) in one forest management area could possibly reaching innovative forest development towards the increased forest value and at the same time aimed to absorb carbon (for example for bio-energy development with coppice system in plantation forest) so that it has positive value as an attempt on replacing some of non-renewable fossil energy with the renewable new

energy. The practice of SFM is considered able to produce environmental-friendly product through innovative attempt on restoring degraded forest as well as low-carbon economic development (or minimum GHG emission). Such products are environmental friendly product (green product) which could also decrease GHG emission and increase carbon supply. Therefore, SFM practice could be called a bridge to green economy development with investment and re-investment that cause positive carbon-free balance.

(7) Law and regulations that gives access to the community through IUPHHK licenses allow community and local people to participate in forest business in the state forest area. This schemes has a high affect on international world concerning the attempt on eradicating poverty just like the one written on Millennium Development Goals (MDGs) considering lowering GHG emission because community are accused for being the factor that contribute to forest degradation and deforestation. Developed country and international world companies are very concern of poor people, which mostly resided in developing country. Therefore, small scale plantation forest company needs to receive more care because they need to be well looked after.

(8) Policy (external factor) that could clearly affecting Pan/Rap carbon implementation, voluntary carbon market (VCM), and REDD+ in Indonesia are policy that concern the integrity of the area, the forming of base level management unit called Forest Management Unit (KPH), market integrity, and environment (social or safeguard included), aside from law enforcement, good forest management, and land tenurial problems. These regulations are for Pan/Rap carbon and GHG emission decrease. Whereas the dominant internal factor affecting are the seriousness of IUPHHK holder on managing/using forest that is shown by owning sustainable forest management certification and timber legality, and also carbon value that will be received as a substitute and incentive on logging.

(9) Policy concerning the practice of Pan/Rap carbon and REDD+ in Indonesia still hasn't perfectly adopting the concept of climate change mitigation. REDD+ especially, the implementation is hindered by the possibility of leakages and social safeguarding that is hard to control on the practice of sustainable development, and also the distribution of benefits on conservation forest, preservation forest, and production forest. While the characteristic of environmental products and services from Pan/Rap carbon activity and REDD+ as non-excludable services is the need for incentive to produce, therefore every form of disincentive needs to be reconsidered regarding the complexity of permission procedures and benefit distribution as written in P. 36/2009

(10) Policy regarding the standardization on sustainable forest development utility assessment still hasn't been integrated with criteria, indicator, and verification to asses emission decreased and carbon supply increase through the scheme future implemented on Pan/Rap carbon and REDD+ or voluntary carbon market (VCM) scheme;

(11) Demonstration Activity (DA) as the readiness implementation level (until 2012) become increasingly important to know various types, methodology, and counting method and also problems in implementing Rap/Pan carbon and REDD+ in Indonesia on international, national, or even sub-national level.

(12) REDD+ is an essential part of lowering GHG emission attempt, nationally or globally. For Indonesia whose forest is the third largest in the world, global support for REDD+, VCM, and A/R CDM has supported Indonesia to consistently lower its GHG emission. With international support, Indonesia will lower its GHG emission for 41% in 2020. However, without international support, Indonesia will aloes decrease it until 26% in 2020, where about 14% of it (or 54% of the target without international support) is expected to come from forestry sub-sector.

(13) The success of Pan/Rap Carbon, REDD +, VCM, and A/R CDM in sustainable production forest management will really depend on the success of overcoming external factor which generally involve policy, regulation, and constitution and also the internal factor involving the readiness and seriousness from and to funding incentive and other incentive given to management unit and or KPH as a forest management unit.

(14) Forest management in Indonesia which is divided based on forest utilization permit involving UIPHHK-HA, HTI, HTR, HKm, ecosystem restoration, and village forest utilization permit (IP-HD) has a broad chance of increasing fund from Pan/Rap carbon and REDD+ funding incentive, whether it is from compliance market which is expected to form on 2012, or even from national and international voluntary market. Especially for HTR, HKm, and HD the realization is very low, which is thought to be caused by the difficulty of acquiring the permit while the assistance that is expected to overcome it still hasn't been able to be introduce.

(15) To support the whole climate change mitigation execution, several policy and regulation concerning lowering GHG emission and increasing carbon supply still hasn't been released, which are: 1) institution (management); 2) distribution mechanism and funding incentive profit sharing; 3) reference emission level (REL)/reference level (RL); 4) REDD+ national strategy; and 5) safeguarding;

(16) There are several regulations and constitutions that could hinder the attempts to lower GHG emission and carbon supply, which are: 1) the plantation constitution; 2) local autonomy; 3) space management; 4) energy and mineral resources; and several derivative government regulations.

6.2. Recommendations

(1) Policy options which lower GHG emission from deforestation and forest degradation and increase of forest carbon supply on sustainable forest management has to stressed on the importance of sustainable forest management (SFM) certification in natural forest, plantation forest, and community based forest management;

(2) Constitution regulation concerning the execution of Pan/Rap carbon and REDD+ in Indonesia need to keep being perfected to clearly and strictly anticipate and adopt the scheme that has been ratified internationally (UNFCCC) and nationally. Law No. 41 year 1999 interpret forest use as climate change mitigation activity which is a part of environment service, whereas it supposedly could be "carbon credit" which could function as product measured based on carbon sustained (carbon sink) on the ground or in the trees, not forestry service. This carbon credit could be certified by independent parties.

(3) Law No. 26 year 2007 about spatial planning and Government Regulation (PP) No. 26 year 2008 about National Spatial Planning (RTRW), especially concerning province spatial revision which supposedly supporting REDD+ implementation (demanded or voluntarily) and other schemes (voluntary carbon market) while not oppressing local short-term needs. Moreover, local society's and indigenous people's rights, and biophysical-social-economical condition of the area are to be considered so that REDD+, VCM, A/R CDM execution effectively, efficiently, and equity successful while also having additional benefits (effective, efficient, equity, and co-benefits are among the '3E+ criteria);

(4) Law No. 32 year 2009 about Environmental Protection and Management and its derivative regulation, which are government regulation about environmental impact analysis must consider the specification and characteristics of the sector, region, and location, and also

the type of the environment to support the conformity action in supporting REDD+ and other scheme implementation.

(5) Law No. 5 year 2009 about Natural resources conservation and its Ecosystem which stressed on biodiversity protection in a certain region in forest management (conservation forest, protection forest, and production forest) becomes important when REDD+ demand additional benefit, other than the said 3E;

(6) Aside from several regulation that supports the implementation of REDD+, VCM, A/R CDM in sustainable forest management plan in Indonesia, the forming and the functionality of integrated parties in doing its function is very important to be realize so that a good coordination is present between the regional function and management unit organization in base level (Forest Management Unit/KPH).

(7) The use of measurement method, report, and verification – MRV has to be in line with and following the method used by international standard (UNFCCC) if Indonesian forest industries (IUPHHK-HA, HTI and other plantation forest) are to propose the chance of getting international funding incentive through REDD+ scheme. To ensure it, regulation about mechanism and other related parties in MRV need to be formed immediately.

(8) To evade un-synchronize regulation related with Rap/Pan Carbon and REDD+, the forming of policy and its strategy must involve various parties and with controlled coordination to reach the aim in the following year in the future. Focusing on coordination function, REDD+ is now under REDD+ Task Force (Satgas) , hence it is expected to be able to overcome the various needs of region and sector.

(9) Pan/Rap Carbon, REDD+, A/R CDM, and VCM funding incentive supposed to be run by an organization such as trust fund to manage the funding coming from various international sources by managing the flow, usage, and funding distribution for climate change mitigation in a credible, transparent, accountable, and just manner. For that purpose, regulation about funding management party in REDD+, VCM, and A/R CDM plan must be formed and enacted through government regulation or constitution regulating it.

(10) REDD+ task force which is working to overcome REDD+ organizing, MRV, and funding options has to consider various dynamics that happens on the field, because essentially, RDD+ is a policy option that can only be implemented once every parties understands and receives it benefits in the future.

(11) Safeguard as an important part that become the signal of REDD+ and other schemes implementation success need to get additional consideration in regulation and policy planning. Safeguard must fulfill the following requirement: a) consistent with national forestry program, b) transparent management structure, c) respecting rights, d) multistakeholder participation, e) non-conversion, additional benefit, and sustainable management, f) on target, and g) aimed for emission displacement.

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FRAMEWORK AND DEFINITIONS

Afforestation (A) is a forests planting on previously non-forest areas. According to the terminology of the clean development mechanism (CDM) or CDM is a planting of trees or land conversion activities not forested since 50 years or more into forests.

IUPHHK Work area is a production forest area that burdened by timber utilization license.

APHI (Association of Indonesian Forestry) is a nonprofit organization that embodies the shareholders of license utilization of timber forest products (IUPHHK) in natural forests and plantations forest or timber estate.

Forest biomass is a total dry weight of all of the plant life parts, either for all or part of the body of organisms, populations or communities and expressed in oven dry wight per unit area (tons/unit area).

DR (Reforestation Fund) is a fund collected from IUPHHK in natural forest at production forest to reforest and rehabilitate the forest or from area coverted to other uses (non-forest).

DA (Demonstration Activity)-REDD is a form of the implementation of COP-13 mandate made in Bali on REDD pilot project in the form of activities to find the appropriate methodology, measurement, reporting and verification of carbon emission reduction activities from deforestation and forest degradation.

Carbon emissions are a form of chemicals evaporation from the element ofcarbon (C) that if bound with oxygen in air become CO2 which accumulation may endanger human life ie a greenhouse effect or global warming that can lead toglobal climate change.

Effects of GHG (Greenhouse Gas) is the effects from an accumulation of carbon emissions (pollutants) in the Earth's atmosphere so that the earth's heat wavecan not penetrate into a layer in the air filled with pollutants and result in heat likea greenhouse, and can also lead climate change.

Governance (governance) is "the manner in the which power isexercised in the management of a country's social and economic resources fordevelopment" (World Bank). Governance is defined as the mechanisms, practices and procedures of government and citizens (social) as well as manage resources to solve public problems.

Forest is a field which whole trees grow as communion of life and its biological nature and the natural environment set by the Government as a forest.

State Forest is a forest area and forest growing on land that is not encumbered property rights.

Natural forest is an area of trees grow which overall biodiversity living communion of nature and the natural environment set by the Government as aforest.

Right forests are forests which are on land that is not encumbered land rights.

Production forests are forest areas that have the function of forest products to meet community needs, development, industry and exports.

HTR (Community Plantation Forest) are plantation forest in the production forest which was built by community groups to improve potency and quality of production by applying silviculture in order to ensure the sustainability of forest resources.

HTI (Industrial Forest Plantations) are plantation forest in the production forest which was built by the forestry industry to increase the potency and quality of production by applying silviculture in order to supply raw material demanded by wood-based industry.

IUPHHK-HA (Business License of Timber Forest Product Utilization for Natural Forest) is a business license given to utilize forest timber innatural forest production through harvesting or logging activities, enrichment,maintenance, and marketing.

IUPHHK-HT (Business License of Timber Forest Product Utilization for Plantation Forest) is a business license given to utilize forest timber productionin forest plantations under production forest through land preparation, seeding,planting, maintenance, harvesting, and marketing.

IUPHHK-RE (Utilization License of Timber Forest Product Utilization for Ecosystem Restoration) is a business license to build in natural forest areas in production forests have important ecosystem (flora, fauna and non-biological) to achieve a balance of biological and ecosystem.

IUPJL (Environment Services Business License) is a business license given for the use of environmental services in protected forest, conservation, and / or forest production permitted by governement.

ITTO (International Tropical Timber Organization) is an international organizationfor producers and consumers of tropical timber products.

IPHH (Primary Forest Products Industry) is the processing of logs and chips or wood raw materials into semi-finished goods or finished goods (direct usages).

REDD incentives plus is the benefits that can be obtained in the form of financial support and or technology transfer or capacity building and addressed to the parties concerned in REDD activities plus from producers to buyers of carbon.

Forest Carbon is the carbon stored in forests that can be obtained by estimating the content of forest biomass.

Forest Areas is the designated and specific area or set by the Government to maintain its existence as a forest.

FMU (Forest Management Unit) or *KPH* is the area of forest management outhorized by technical executive unit at the site according to its main function which dominant in the region and its adoption by function based on the watershed forests.

Criteria and Indicators is the quantitative attributes, qualitative, or descriptiveand that, when analyzed in direction of change.

Criteria and Indicators for Sustainable Forest Management Performance Assessment is an attribute of quantitative, qualitative, or descriptive of the conditions and determinants which considered to have important value in use (management) of forest and can guarantee the preservation or conservation of forests and forest management.

LPI (Independent Assessor) is a legal entity which has the competence toprovide services in appraising the performance of sustainable production forest management to forest management unit production forest (natural forest and plantation forests, community forests which utilizes wood as a result of its forests, and forests).

Pan / Rap Carbon is a scheme aimed at mitigation of climate change for storage or sequestration and carbon (C) in a particular area in an effort to reduce carbon emissions.

Forest Utilization is an activity to exploit forests, environmental services, forest products and non-wood timber, as well as collect forest products and non-woodtimber in an optimal and fair to the welfare of society while maintainingsustainability.

Utilization Regions is an activity to take advantage of growing space in order to obtain the environmental, social, and economic optimally by not reducing its main function.

Utilization Timber Forest Product is an activity to exploit and commercialize forest timber without damaging the environment and does not reduce its mainfunction.

Utilization of environmental services are activities to harness the potential of environmental services by not damaging the environment and does not reduceits main function.

Determination of the Forest Zone is providing legal certainty regarding the status, location, boundaries and area of a particular area that has beendesignated as forest land into forest areas remain with the decision of the Minister.

Performance assessment is the assessment given to forest products utilizationunit through the review of indicators on prerequisite criteria, production forest, social and environmental (ecological) in accordance with applicable regulations.

PSDH (Forest Resource Provision) is the levy charged to the holder of a license for utilization forest products as a substitute for the intrinsic value from forest products harvested from state forests.

MRV (Measurement, Report, and Verification) is an activity to measure, report and verify the whole activities conducted in REDD /REDD plus to obtain validation from efforts to reduce carbon emissions, improvement and maintenance of carbon stocks in certain areas by a developer unit.

Environmental Services Value of Rap / Pan Carbon is the revenue from the sale of carbon credits that have been certified and paid based on ERPA (Emission Reduction Purchace Agreement)

MU (Management Unit) is a unit of forest management units legal entities permitted a business license based on the utilization of timber preservation regulation of timber and the right to utilization of timber production forest inforests seseuai with permissions granted.

Reforestation (R) is the forest plantation development that was previously aforest. Meanwhile, according to CDM, reforestation is the planting or reforestation of forest land whose conditions are not forested since 31December 1989.

RE (Ecosystem Restoration) is an activity to build in natural forest areas underproduction forest that have important ecosystem (flora, fauna and non-biological)to achieve a balance of biological and ecosystem.

REL (Reference Emission Level) is the a level where the fraction of the forest that are biophysical, economic status and legally risky to be converted or degraded in the future due to carbon emissions.

Silviculture system is a system of forest cultivation or farming techniques for forest plants from seeds or seedlings selecting, sowing, planting, maintaining plants and harvest the results.

TLAS (Timber Legality Assurance System) is a system used to verify / evaluate the complience standards of legality (validity) of wood in the management unit.

REDD (Reducing Emissions from Deforestation and Forest Degradation) is an international mechanism to provide incentives for developing countries whichable to reduce carbon emissions from forest degradation in the form of climate change mitigation in the

forestry sector (excluding the conservation and practices Sutainable Forest Management, 'SFM'). REDD is one decision at COP-13 UNFCCC in December 2007 in Bali.

REDD Plus (Reducing Emissions from Deforestation and Forest Degradation Plus) is an international mechanism to provide incentives for developing countries which able to reduce carbon emissions from forest degradation in the form of climate change mitigation in the forestry sector (coupled with conservation and SFM practices). REDD Plus is one decision at COP-14UNFCCC in Poznan, Poland.

LIST OF ABBREVIATIONS

A

A	:	Afforestation
A/R CDM	:	Aforestation/Reforestation Clean Development Mechanism
AFP	:	ASEAN Forest Partnership
AFOLU	:	Agriculture, Forestry, and Other Land Use
AMDAL	:	Environmental Impact Assessment
APBD	:	Sub-National Budget Revenue and Expenditure
APBN	:	National Budget Revenue and Expenditure
APL	:	Other Areas of Non-Forest Usages.
APHI	:	Association of Indonesian Forest Concessionaires
AusAid	:	Australian Government's Overseas Aid Program

B

BAP	:	Bali Action Plan
BAU	:	Business As Usual
Bappenas	:	National Planning and National Development
BPN	:	National Land Board
BPK	:	Directorat General of Forestry Production Utilization, Ministry of Forestry
BUK	:	Directorate General of Forestry Business UDevelopment, Ministry of Forestry.

C

CAR	:	Correction Action Request
CDM	:	Clean Development Mechanism
COP	:	Conference of Parties
COC	:	Chain of Custody
CSR	:	Corporate Social Responsibility
CS	:	Carbon Stock
CTCN	:	The Climate Technology Center and Network

D

DA	:	Demonstration Activity
DAS	:	Catment Area or Watershed
DAU	:	General Allocation Fund for Sub-National Government
DAK	:	Special Allocation Fund for Sub-National Government.
DNPI	:	Indonesian Council on Climate Change
DR	:	Reforestation Fund

E

ET	:	Emission Trading

F

FA-KB	:	Transportation Invoice of Logs
FA-KO	:	Transporation Invoice of Processed Wood
FAO	:	Food and Agriculture Organisation
FBC	:	Forest Based Carbon
PCPF	:	Forest Carbon Partnership Facility
FIP	:	Forest Investment Program
FMU	:	Forest Management Unit
FSC	:	Forest Stewardship Council
FRIS	:	Forest Resources Information System

G

Gerhan	:	Forest and Land Rehabilitation Programs (Movement)
GNRHL	:	National Movement for Forest and Land Rehabilitation
GRK	:	Greenhouse Gas

H

HD	:	Village Forest
HK	:	Conservation Forest
HP	:	Production Forest
HPH	:	Forest Concession
HPK	:	Convertible Production Forest
HL	:	Protected Forest
HTI	:	Industrial Forest Plantations
HTR	:	Community-based Plantations Forest
HKm	:	Community Forest
HR	:	Smallholder Private Forest

I

ICA	:	International Consultation and Analysis
IFCA	:	Indonesian Forest Climate Alliance
INCAS	:	Indonesian National Carbon Accounting
IPCC	:	Intergovernmental Panel on Climate Change
ITTO	:	International Tropical Timber Organization
IUCN	:	International Union for Conservation Nature
IUPHHK	:	Utilization License of Timber Forest Product
IUPJL	:	Utilization License of Environmental Services Business.

J

JI	:	Joint Implementation

K

KAN	:	National Accreditation Committee
KBK	:	Forestry Cultivation Area
KBNK	:	Cultivation of Non-Forest Area
KLHS	:	Strategic Environmental Assessment
KPH	:	Forest Management Unit

KPHK : Conservation Forest Management Unit
KPHL : Protected Forest Management Unit
KPHP : Production Forest Management Unit

L

LEI : Indonesian Ecolabelling Institutions
LHP : Production (Wood) Report
LoI : Letter of Intent
LPI : Independent Institution Assessor
LSM : Non-Governmental Organization
LUCF : Land Use Change and Forestry
LULUCF : Land Use, Land Use Change and Forestry
LP & VI : Assessment and Verification Independent Institutions

M

MRV : Masurement, Reporting and Verification
Mt CO_2e : Metric Tons of Carbon Dioxide Equivalent

N

NCE : Net Carbon Emission
NGO : Non-Government Organization
NJ2L : Selling Value of Environmental Services

P

PAD : Local Pure Revenue
PCPF : Forest Carbon Partnership Facility
PDB : Gross Domestic Product
PHAPL : Natural Production Forest Management
PHPL : Sustainable Management of Production Forest
PHTL : Sustainable Management of Forest Plantations
PHLN : Foreign Grants Loans
Pokja : Working Group
PP : Government Regulation
PSDA : Forest Resource Provision

R

R : Reforestation
Rap/Pan : Absorption and Storage
RAN : National Action Plan
REDD : Reducing Emission from Deforestation and Forest Degradation
REDD + : Reducing Emission from Deforestation and Forest Degradation Plus
REL/RL : Reference Emission Level
RIL : Reduced Impact Logging
RKTN : National Forestry Plan
RKU : Business Plan
RKT : Annual Work Plan
RPJM : Medium Term Development Plan

RPJP	:	Long Term Development Plan
RPPH	:	Plan Forest Management Patterns
RTRW	:	Spatial Plan of Region
RTRW (P/K)	:	Spatial Planning (Province / Regency / City)
RE	:	Ecosystem Restoration

S

Satgas	:	Task Force
SDM	:	Human Resource
SDH	:	Forest Resource
SEM	:	Sustainable Ecosystem Management
Setkab	:	Cabinet Secretary
SFM	:	Sustainable Forest Management
Silint	:	Intensive Silviculture
SME	:	Sustainable Management of Ecosystem
SMF	:	Sustainable Management of Forest
SMR	:	Sustainable Management of Resources
Stranas	:	National Strategy
SVLK	:	Wood Legality Verification System

T

TPI	:	Indonesian Selective Cutting
TPTII	:	Indonesian Selective Cutting and Planting
TPTJ	:	Selective Cutting and Line Planting
TNC	:	The Nature Conservation
TUK	:	Timber Administrative

U

UKP4	:	Presidential Working Unit of Supervision and Control of Development
UM	:	Management Unit
UNFCCC	:	United Nation Framework Convention on Climate Change
UN-REDD	:	United Nation on Reducing Emission from Deforestation and Forest Degradation
USA	:	United State of America
UUPH	:	Law on Environmental Protection and Management
UU	:	Law (Act)

V

VCM	:	Voluntary Carbon Market
VLK	:	Wood Legality Verification

STUDY AND ANALYZE REGULATIONS CONCERNING SUSTAINABLE FOREST MANAGEMENT, FOREST BASED CARBON, C STOCK, CO2 SEQUESTRATION AND GREEN PRODUCT

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ITTO

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Enhancing Forest Carbon Stock to Reduce Emission from Deforestation and Degradation through Sustainable Forest Management (SFM) Initiatives in Indonesia

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