

TRIALS, TRIBULATIONS AND SUCCESS OF RIL – THE SARAWAK EXPERIENCE

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Abstract

The Reduced Impact Logging (RIL) Guidelines is one of the key components in Sustainable Forest Management (SFM), which requires stringent regulations on forest harvesting operations as well as responsible harvesting practices by the logging operators. *“RIL is defined as a comprehensive set of planning, monitoring and control practices regulating timber harvesting operations that support the goal of SFM, aiming at a reduction of forest damage to an acceptable level, and lowering adverse environmental and social impacts, while promoting operational efficiency and economic viability as well as to ensure health and safety of all forest workers.”* RIL guidelines for Sarawak were formulated way back in 1999, based on two global collaboration projects, namely the Model Forest Management Area (MFMA) under International Tropical Timber Organisation (ITTO) from 1993 to 1996 and Forest Management Information System (FOMISS) under the Malaysian-German Technical Cooperation from 1995 to 2001. Based on the experience gained from these projects and trials conducted in the field, Forest Department Sarawak (FDS) had developed the guidelines for Reduced and Low Impact Harvesting System (1999). Since then, this guideline has been revised several times and thereafter, the current RIL version for Ground-based Harvesting System Part 1 and Part 2 (Guideline 10A and 10B) in The Green Book in 2019. In October 2020, a harmonized RIL Guideline was produced in collaboration between FDS and FAO-European Union Forest Law Enforcement, Governance and Trade (EU FLEGT) Programme to comply with the international standards.

Keywords: Sustainable Forest Management, Reduced Impact Logging, Timber Harvesting

1.0 INTRODUCTION

Reduced Impact Logging (RIL) in Sarawak is focused on Hill Mixed Dipterocarp Forest (MDF). Logging in this Hill MDF on a commercial scale using mechanized means (specifically by tractors) began in the early 1950s.

FAO carried out a forest resource inventory of eight industrial units of MDF in Sarawak during the period from 1969 to 1972 under the Forestry & Forestry Industries Development Project. Subsequently, long-term Forest Timber Licenses were issued over these industrial units for timber harvesting, which had to be carried out in accordance with the prescriptions of the Forest Management Plan (FMP) of these licenses. A selective felling system was imposed to ensure the sustainable management of the permanent forest estate.

A follow-up FAO/UNDP Project was carried out during the period from 1977 to 1981 to assist Sarawak in planning an integrated development of the forestry sector. Engineering studies were conducted to establish principles and provide guidelines for the planning and execution harvesting of the MDF. Based on the recommendations of this project, the Forest Engineering Plan (FEP) was formulated for implementation in the long-term hill licenses. This was to ensure a proper planning of the logging roads and harvesting operations so as to improve the standard of logging and also to protect the environment and forest resources. Forest Department Sarawak (FDS) then incorporated the FEP into the Forest Management Plan of the Forest Timber Licenses and the FEP was implemented in 1986. The FEP contains the planning elements for doing RIL and therefore, it can be concluded that our logging operators had started practicing some form of RIL since 1986.

The International Tropical Timber Organization (ITTO) defines “Sustainable Forest Management” as a process of managing forests to achieve one or more specified objectives of management with regard to the production of a continuous flow of desired forest products and services, without undue reduction of its inherent values and future productivity and without undue undesirable effects on the physical and social environment. Its Mission to Sarawak in 1989/1990 to assess sustainable forest management in the State had stated that forest management in Sarawak was of a higher standard than in most other tropical timber-producing countries. As a follow-up to the recommendation by this Mission, the Model Forest Management Area (MFMA) Project was implemented over a period from 1993 to 2000. One of its specific objectives was to demonstrate viable new methods and technologies for sustainable forest production management in the Model Area.

A Malaysian-Germany Technical Cooperation Project, titled "Forest Management Information System Sarawak (FOMISS)" was also implemented from 1995 to 2001 to contribute to the promotion of sustainable forest management in Sarawak. A pilot study area in the Upper Baram was set up to carry out Reduced Impact Logging trial and to demonstrate less damaging and environmentally-friendly harvesting methods.

The results obtained from the MFMA project and the FOMISS Project enabled FDS to prepare the first “Guidelines/Procedures for Reduced Impact Harvesting System” in 1999. The primary objective was to ensure that such Guidelines/Procedures would be made available to logging operators who intended to implement certification for Sustainable Forest Management in their Timber Licensed Areas or Forest Management Units.

2.0 WHAT IS REDUCED IMPACT LOGGING (RIL)

RIL is defined as “a comprehensive set of planning, monitoring and control practices regulating timber harvesting operations that supports the goal of Sustainable Forest Management (SFM), aiming at a reduction of forest damage to an acceptable level, and lowering adverse environmental and social impacts, while promoting operational efficiency and economic viability as well as to ensure health and safety of all forest workers.” It is therefore one of the major elements to be implemented in order to achieve SFM for the State’s forest.

The first RIL Guidelines for Sarawak were formulated way back in 1999 based on two international collaboration projects. The two projects were the Model Forest Management Area (MFMA) with the International Tropical Timber Organisation (ITTO) from 1993 to 2000 and Forest Management Information System (FOMISS) with the Malaysian-German Technical Cooperation from 1995 to 2001. The main objective of these two projects was to formulate a sustainable forest management system applicable to the hill mixed-dipterocarp forest in Sarawak. The results from these two projects were used by FDS to develop the “Guidelines/Procedures for Reduced Impact Harvesting System” in 1999.

FDS has updated the RIL Guidelines several times over the years. The current version that is being used by the logging operators is the “RIL for ground-based harvesting system” under Guidelines 10A and 10B of the Green Book that was published in 2019. Logging operators are expected to carry out the following activities in compliance with these Guidelines:

- Preparation of Detailed Harvesting Plan/Road Plan to show logging road alignments and block layout (adopted from FEP)
- Preparation of RIL workmap for individual blocks
- Pre-felling inventory of all trees selected for felling inclusive of tree tagging
- Identification, marking and recording of trees for protection
- Preparation of Reduced Impact Logging Plan (RILP)
- Construction of logging roads, skid trails and roadside landings – Measures to take
- Tree felling – What should be done and what should not be done
- Skidding operation - What should be done and what should not be done
- Post-harvesting activities

In March, 2019 FDS and FAO embarked on a collaboration to carry out gap assessment of the Harmonized RIL Guidelines against international best practices and through multi-stakeholder consultations. Based on this collaboration, a document on the latest revised RIL Guidelines entitled “Reduced Impact Logging Guidelines for Ground-Based Timber Harvesting in the State of Sarawak” was published in March 2021.

3.0 IMPLEMENTATION OF REDUCED IMPACT LOGGING (RIL)

In September 2017, the State Government of Sarawak made a commitment to make Forest Management Certification (FMC) mandatory for all long-term Forest Timber Licences. FDS is the lead implementing agency and is responsible for preparing the policy paper, and action plans, as well as developing relevant guidelines and procedures taking into account the requirements, criteria & indicators of the forest management certification schemes such as Forest Stewardship Council (FSC), Malaysian Timber Certification Schemes (MTCS) and other internationally-recognized certification schemes.

The Policy Direction was approved in September 2019 and it outlined the FMC Management Prescriptions, as well as the criteria for the identification and establishment of viable Forest Management Units (FMUs) to allow for SFM and the implementation of certification. Under the FMC Policy, all Long-Term Licences (also referred to as F30 Licences by FDS) are required to establish their Forest Management Plans (FMPs) and obtain SFM certification by 2022.

There are situations where the size of the individual Forest Timber Licence is less than 25,000 hectares and therefore is not economically viable for the logging operator to implement certification as a stand-alone FMU. It is proposed that 2 or more of such licences, that are within close proximity, be consolidated into a single FMU for the purpose of implementing certification. However, this proposal is possible provided the licences involved are operated by the same Timber Company or there is mutual agreement by the shareholders of the different licences involved. Out of the 31 FMUs that are either certified or at various stages of implementing FMC, 3 of these FMUs involve the consolidation of 2 licences.

For other Forest Timber Licences with small operable forest areas but are quite far apart from each other, FDS has proposed and encouraged group certification. However, none of these small licences have taken up group certification due primarily to their distant and isolated locations.

Administratively, Forest Department Sarawak has conducted consultative sessions/meetings with the Forest Timber Licensees, logging companies and relevant government agencies on land use/land claim issues, establishment of FMU based on various options i.e. stand-alone, consolidation of adjacent licences under same timber company or through mutual consent of shareholders and lastly, group certification.

3.1 RIL practice as a pre-requisite in implementing Sustainable Forest Management (SFM)

There is now a growing global concern over the exploitation of tropical rain forest and that such forest is not being sustainably managed for log extraction, resulting in environmental degradation, loss of biodiversity and climate change. Many consumer countries are now sourcing for and buying tropical logs from SFM certified forest. For this reason, Sarawak has embarked into forest management certification to improve and enhance Sarawak's image and reputation as a responsible manager of the State's forest.

The logging operators that are working in the FMUs are required to prepare the Forest Management Plan (FMP) to facilitate sustainable forest management in each FMU. The FMP must comply with internationally recognized certification standards. In Sarawak, all the logging operators are using the

Malaysian Criteria & Indicators, MC&I SFM of the Malaysian Timber Certification Scheme (MTCS). In committing to implement SFM certification for the timber harvesting operation, the logging operators will have to comply with Indicator 6.5.2: “Implementation of Reduced Impact Logging to minimize damage to environment” of Principle 6 of MC&I SFM. The “RIL for Ground-Based Harvesting System”: Parts 1 and 2” under Guidelines 10A and 10B of the Green Book that was published in 2019 by FDS have been adopted as a verifier for Indicator 6.5.2. Therefore, RIL practice by the logging operators is not an option but rather it is a pre-requisite in implementing SFM and achieving certification status for the FMU.

3.2 Trials and tribulations (difficult experiences and problems) faced by timber companies in carrying out Reduced Impact Logging (RIL)

Timber companies had their first experience on RIL in 1986 when FDS implemented the Forest Engineering Plan (FEP) for the long-term hill licences. The FEP then focused primarily on the proper planning of logging roads and timber harvesting operations, which is one of the main RIL activities.

In 2019, Forest Management Certification (FMC) was made mandatory for all long-term Forest Timber Licences and FDS set a deadline for these licences to achieve certification by 2022. Therefore, the affected timber companies had to carry out preparatory works and this included implementing the RIL activities in accordance with the comprehensive “RIL for Ground-Based Harvesting System” under Guidelines 10A and 10B of the FDS Green Book.

Prior to 2019, the timber companies had been using the conventional logging method for log extraction without having to (a) prepare the RIL workmap of individual blocks, (b) carry out enumeration and tagging of trees selected for felling, marking and recording of trees for protection and preparation of the RILP. Therefore, the timber companies encountered a number of trials and tribulations (difficult experiences and problems) in carrying out reduced impact logging based on the FDS “RIL for Ground-Based Harvesting System” under Guidelines 10A and 10B of the Greenbook. The issues faced by the timber companies as observed by FDS are as listed below:

- Reluctance of some company management to undertake certification and implement RIL methods for log extraction based on the perception that it will lead to increased production cost, reduced log production and therefore, profitability of the timber business is lowered in comparison to the conventional logging method where only the FEP is applied.
- Many of the camp managers, forest managers and block supervisors have limited exposure to the global concern over the exploitation of tropical rain forest and that such forest is not being sustainably managed for log extraction. As such, they feel that RIL is a hindrance to the timber harvesting operation and resent its implementation.
- Low to medium level education background of most of the camp managers, forest managers and block supervisors resulting in lack of understanding of SFM, FMC and RIL caused by language barrier as the information, documents, procedures on SFM, FMC and RIL are mainly in English.
- Inadequate trained manpower within the timber industry to carry out the RIL activities. The critical work skills needed are (a) expertise in tree identification for the purpose of selecting trees for

harvesting and for protection (b) competent field surveyors to do planning, aligning and marking of skid trails as well as prepare RIL workmaps and RILP.

- Difficulty in recruiting additional and competent manpower to undertake the RIL activities. Many of the FMUs are located in remote locations with difficult terrain. Under such conditions, it is physically very demanding to carry out the activities as required in the comprehensive FDS “RIL for Gound-Based Harvesting System” under Guidelines 10A and 10B and thus, there is a need to get additional and competent manpower to get the job done satisfactorily. However, very few people are keen to work under such conditions.

3.3 Positive/beneficial impacts experienced by timber companies in carrying out RIL practices to achieve SFM certification

Although the timber companies that are carrying out RIL practices to achieve SFM certification have initially encountered difficult experiences and problems, they are also able to gain positive/beneficial impacts such as:

- Better perception and responsibility of the company management towards ensuring that the forest in the FMU is sustainably managed during the process of timber harvesting.
- The image of the company is enhanced as it reflects the company’s responsibility and commitment towards SFM and implementing RIL for its timber harvesting operation in the FMU.
- Security of tenure for the certified FMUs that are doing RIL is justified. The State Government has indicated that the tenure period of Forest Timber Licences would be extended for another 60 years provided the licensees take steps to incorporate the requirements of Forest Management Certification.
- Greater awareness of the local communities living in the vicinity of the FMU that the timber company is doing responsible timber harvesting i.e. RIL in the FMU based on the internationally recognized Malaysian Timber Certification Scheme.
- Improved transparency in the Chain of Custody for log movement from the Felling Site to the Place of Royalty Marking (PoRM) and the Collection & Distribution Centre (CDC) through the implementation of a tree tagging system under RIL Practices.
- Adverse impacts on the environment i.e. the residual forest stand, the forest floor and waterways are reduced.
- Workers carrying out timber harvesting operation are now much more aware of the high risks, hazards and dangerous work environment as RIL also emphasizes on worker’s safety and health. This has been made possible through training and awareness programmes conducted by FDS, Sarawak Timber Association (STA) and Department of Occupational Safety and Health (DOSH).

3.4 Progress of RIL implementation in FMUs

As at March 2022, 31 Forest Management Units (FMU), with a total area of approximately 2.5 million hectares and involving 34 Forest Timber Licences, have committed to achieving Forest Management Certification and are therefore implementing RIL practices in carrying out the timber harvesting operation. All these FMUs have had their Forest Management Plans (FMP) approved by Forest Department Sarawak. 13 FMUs (refer to Table 1) have been successfully certified under Malaysian Timber Certification Scheme (MTCS) while the remaining 18 FMUs (refer to Table 2) are either at various stages of FMC audit or are still in the process of doing data collection and ground preparation works prior to auditing.

Table 1: List of Certified FMUs

No.	Forest Timber Licence No.	FMUs	Timber Group	Area (Ha)
1	T/4317	ANAP MUPUT FMU	Shin Yang	83,535
2	T/0294	RAVENSCOURT FMU	Samling	117,941
3	T/3491	KAPIT FMU	Ta Ann	149,756
4	T/3228	LINAU FMU	Shin Yang	72,685
5	T/0280 & T/9115	ULU TRUSAN FMU	Samling	92,751
6	T/0560	RAPLEX FMU	Ta Ann	63,993
7	T/3343	MELATAI-PARA FMU	S.T.I.D.C	49,524
8	T/0413	GERENAI FMU	Samling	148,305
9	T/3135	PASIN FMU	Ta Ann	132,151
10	T/3400	GAAT-MENGIONG FMU	S.T.I.D.C	66,190
11	T/3476	ENTULU-MELATAI FMU	WTK	55,112
12	T/3361	MUJONG MELINAU FMU	RH	41,696
13	T/3342	DANUM FMU	Shin Yang	200,383
TOTAL				1,274,022

Table 2: List of FMUs either at auditing stage or still doing ground preparatory works

No.	Forest Timber Licence No.	FMUs	Timber Group	Area (Ha)	Progress
1	T/3190	BELAGA - BALUI FMU	S.T.I.D.C	63,443	Ground Preparation Works
2	T/0518	PILA MUJONG FMU	WTK	100,978	Completed Stage 2
3	T/3371	BALEH-BALUI FMU	RH	215,088	Completed Stage 1
4	T/3370	PENUAN LEBUWAI FMU	RH	132,416	Ground Preparation Works
5	T/0398	LAWA SENGAYAN FMU	TAPAK ABADI S/B	25,332	Ground Preparation Works
6	T/3132 & T/3148	MERANGU MELATAI FMU	WTK	29,071	Ground Preparation Works
7	T/9155	PATAH FMU	SARA TOURISM & LEISURE S/B	59,790	Completed Stage 1
8	T/3432	NIBONG FMU	S.T.I.D.C	51,533	Completed Stage 1
9	T/3372	MENGIONG ENTULU FMU	RH	64,974	Ground preparation Works
10	T/0341	PATAH TUTOH FMU	KTS	38,687	Completed Stage 2
11	T/0390	TAMA ABU FMU	Samling	182,998	Ground Preparation Works
12	T/3669	OYA BALINGIAN FMU	S.T.I.D.C	78,051	Ground Preparation Works
13	T/3080 & T/3081	PUTAI FMU	WTK	42,394	Ground Preparation Works
14	T/3401	MENGIONG GAAT FMU	S.T.I.D.C	40,428	Completed Stage 2
15	T/3290	TAMAN FMU	KTS	34,317	Completed Stage 2
16	T/3291	SEGAHAM FMU	KTS	38,984	Completed Stage 2
17	T/3433	BAHAU KAYO FMU	S.T.I.D.C	32,980	Ground Preparation Works
18	T/9059	JALIN FMU	SHIN YANG	26,376	Ground Preparation Works

			TOTAL	1,257,840	
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The distribution of these 31 FMUs as at March 2022 within the State is as shown in Figure 1. A breakdown of the distribution by administrative Divisions is shown in Figures 2 (Sibu), 3 (Kapit), 4 (Bintulu), 5 (Miri) and 6 (Limbang).

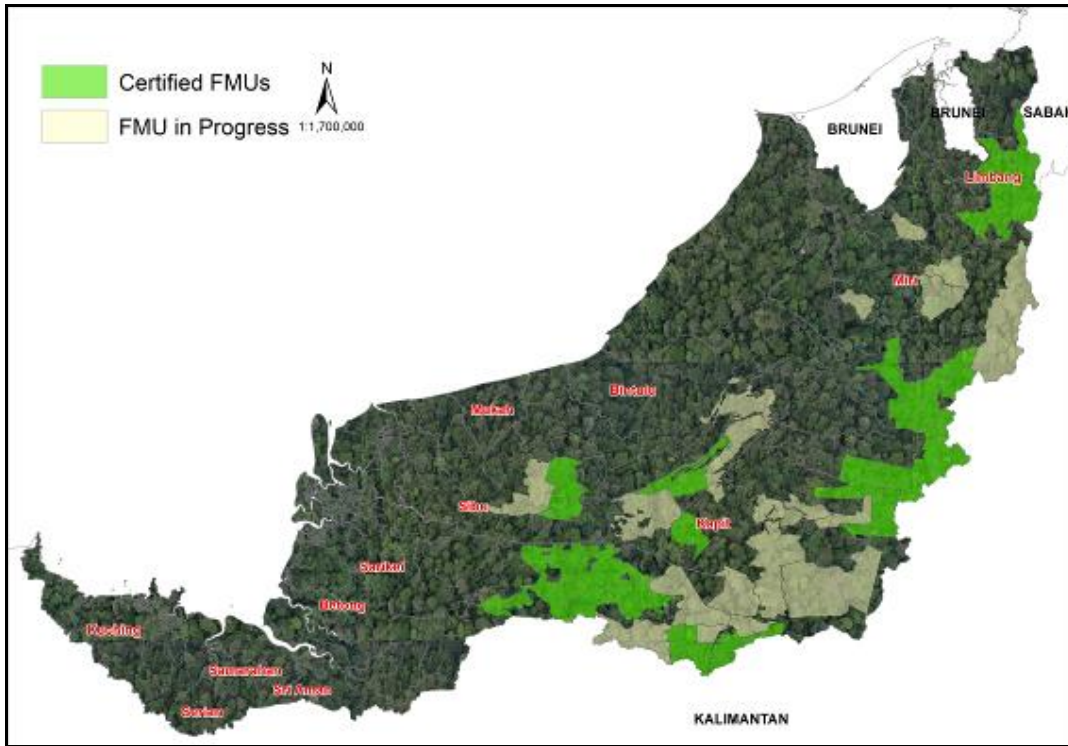


Figure 1: Distributions of FMUs throughout Sarawak as of March 2022

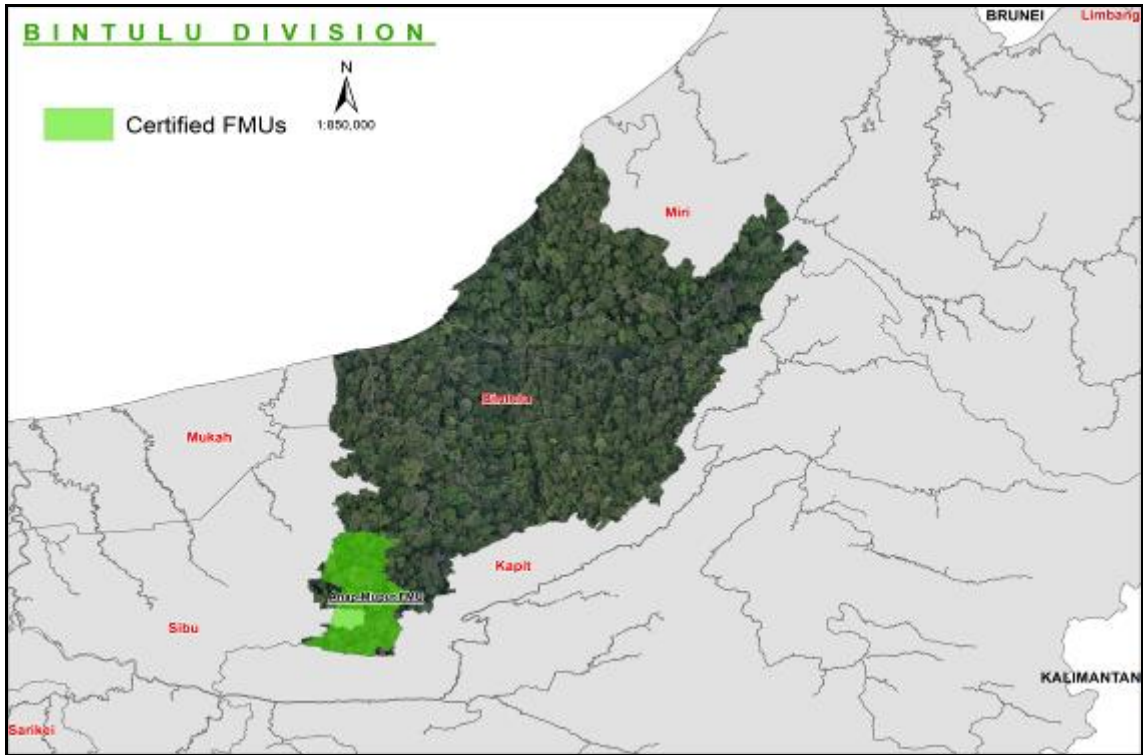


Figure 4: Distribution of FMUs in Bintulu Division

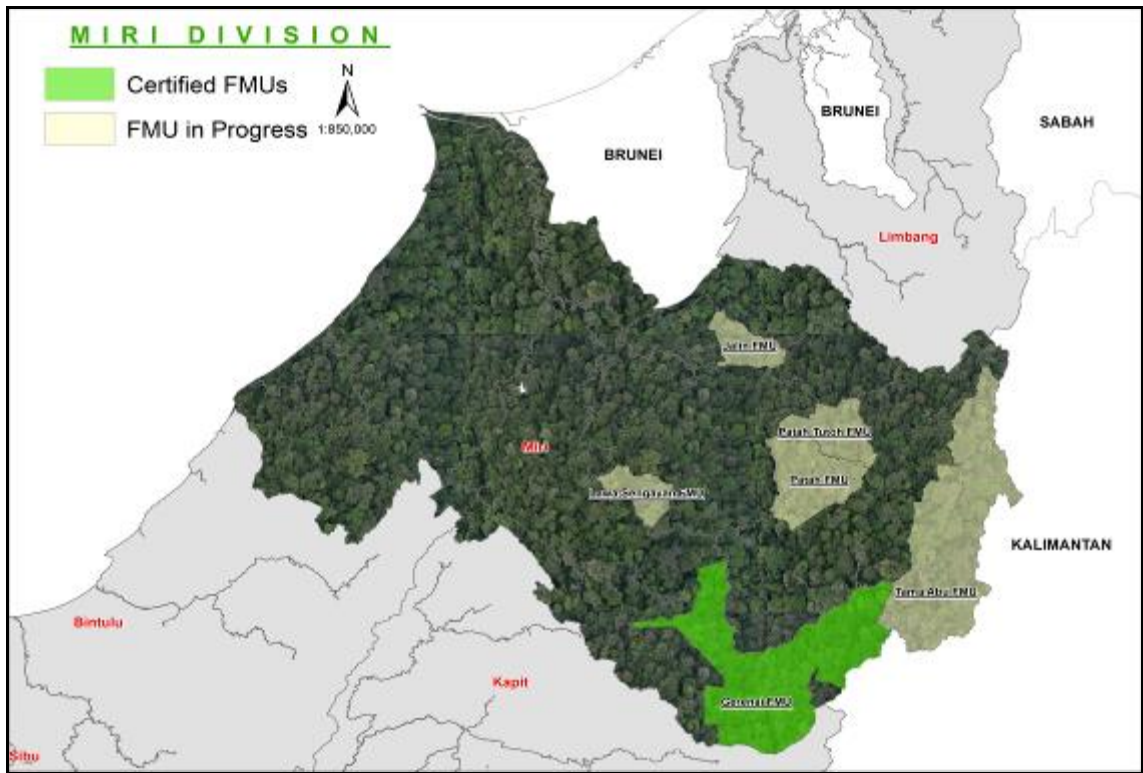


Figure 5: Distribution of FMUs in Miri Division

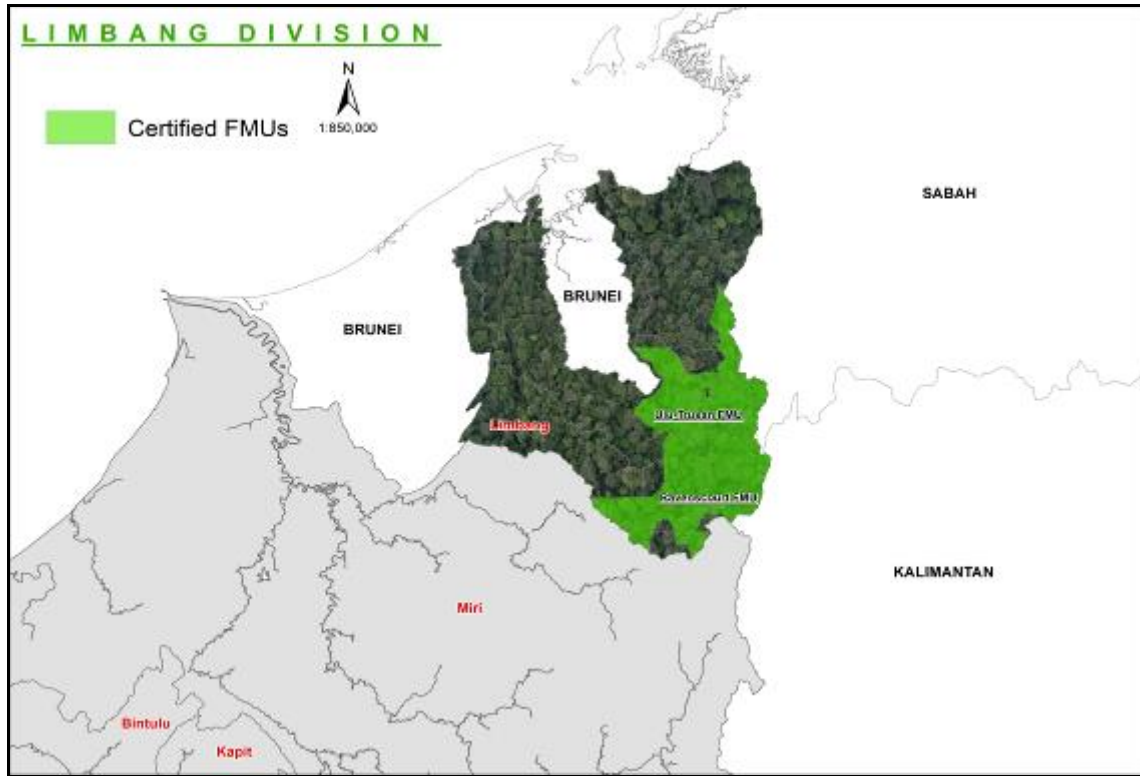


Figure 6: Distribution of FMUs in Limbang Division

3.5 Success of RIL in advancing SFM

Out of the 31 FMUs that have committed in implementing sustainable forest management certification, 13 of them have achieved “Certified” status as at March 2022. These 13 FMUs were certified based on the Malaysian Timber Certification Scheme (MTCS). RIL is a key component of SFM and therefore, a measure of the success of RIL in advancing SFM will be based on the number of FMUs that have successfully undergone the auditing process and received the certificate for Forest Management Certification from the auditor. This also means that the success rate is 42% only as of March 2022.

It must, however, be noted that Sarawak was seriously affected by the Covid-19 virus pandemic in 2020 and 2021 with numerous movement control orders (MCO) and lockdowns, which hampered the preparatory works in the FMUs. The auditing process was also delayed as the external auditors were unable to travel to the FMUs. Hopefully more FMUs in Sarawak can be certified within 2022 with the end of the pandemic and opening up of the State.

FDS also has plans to carry out a systematic RIL compliance assessment in the FMUs with the main objective to assess the level and quality of compliance with the provisions of the RIL Guidelines. Standard operating procedures have been developed for this assessment to be done in randomly selected blocks.

4.0 WAY FORWARD FOR RIL PRACTICE IN SARAWAK

The State Government of Sarawak has made it mandatory for all long-term Forest Timber Licenses to achieve certification in Sustainable Forest Management. Therefore, the logging operators working in the FMUs have no choice but to carry out RIL in their timber harvesting operation based on the FDS Guidelines 10A and 10B of the Green Book. These current Guidelines are comprehensive and it has taken the logging operators a number of years to adjust from using the conventional logging (CL) method to RIL for their timber harvesting operation.

In 2019, FDS with the help of FAO-EU FLEGT Programme and WWF-Malaysia carried out a project to identify the gaps in the current RIL Guidelines and a document on the latest revised RIL Guidelines, titled “Reduced Impact Logging Guidelines for Ground-Based Timber Harvesting in the State of Sarawak” was published in March 2021. The migration to this latest RIL Guidelines of 2021 will be done in stages as further studies, field testing, awareness and capacity building have to be conducted and enhanced.

The achievement/success of certification status for all the long-term licenses can only be realized and maintained, provided that the logging operators are (a) able to carry out the RIL activities as indicated in the upgraded FDS Guidelines (as and when such Guidelines are put in force), and (b) convinced that there will be more significant financial and environmental benefits in using the upgraded Guidelines compared to the current Guidelines.

In order to move forward to ensure the acceptance of RIL practice and the continuity of SFM certification status for the long-term licenses in Sarawak, FDS will set out an approach as outlined below.

4.1 Intensified RIL training for forest workers

Continuous and intensified training of forest workers, including the supervisors and senior management personnel of the timber companies is a high priority in enhancing their RIL knowledge and skills. Such training will be in the form of short courses to cover the theoretical aspects of the RIL Guidelines and field practical sessions for hands-on training. FDS will implement the training programmes and conduct the training with the help of STA and external training providers.

FDS will also be able to identify the gaps in knowledge and skills of the forest workers in RIL from the training sessions and this will assist FDS in enhancing the quality of training deliverance in the future and also subsequently improve the RIL Guidelines.

4.2 Continuous assessment and improvement of RIL Guidelines for practical use.

The RIL Guidelines for SFM certification have been revised by FDS a number of times making it a comprehensive and complex document. The Guidelines 10A and 10B of the Greenbook that is currently being used by the logging operators has also already undergone a gap assessment and may eventually be phased in for implementation by the logging operators.

FDS is aware that for any RIL Guidelines to be effective and acceptable by the logging operators, such guidelines must be pragmatic and practical. Therefore, comprehensive field testing and assessment of the latest version of the RIL guidelines or other future guidelines will be carried out on the ground in order to

ensure its practicality and fine-tuning may need to be carried out based on the gaps and deficiencies identified.

FDS will also develop a pictorial manual with easy-to-understand illustrations on carrying out RIL activities for use by the forest workers, supervisors and regulatory agencies.

4.3 Assessment of the financial and environmental benefits of RIL implementation in certified FMUs

It cannot be denied that in order to achieve SFM certification of the FMUs, it is essential that the timber harvesting operation be improved through the implementation of RIL. Research studies on RIL have indicated that RIL can achieve potential financial and environmental benefits. Properly planned and well-supervised timber harvesting operations are capable of reducing the costs by a substantial margin compared to conventional logging practice as mentioned by *Dykstra (2001)*.

However, some of the timber companies feel that these positive results are questionable under local conditions and they are still skeptical on the financial benefits as it is definitely more costly to implement RIL compared to conventional logging in view of the comprehensive and complicated guidelines. Furthermore, the cost of labour, fuel and materials have increased significantly over the past year and certified timber does not get any “Green Premium” in international markets.

There is now a global concern on the exploitation and diminishing of tropical rain forests and Sarawak has experienced numerous issues and received adverse impressions pertaining to our timber harvesting operation and the sustainability of our forest due to uncontrolled logging and environmental degradation. The Government has therefore decided to address this issue by requiring all long-term Forest Timber Licences to implement SFM certification by 2022. In terms of environmental benefits, RIL is expected to reduce (a) damage to the residual stand (covering both potential crop trees and Protected Trees), (b) soil and ground disturbance, stream disturbance and (d) climate change.

Thus, there is a need for FDS to do joint assessments with the timber companies on the financial and environmental benefits of RIL implementation in certified FMUs, while taking into consideration the latest policies and directions of the State and the country (a good example is the minimum wage limit for workers), the complexity of the mixed dipterocarp forests, diversity of topographical variables, unresolved land and native issues and the unsteady timber market both locally and overseas. Hopefully, the outcome of this assessment can clear the air as to the significance of the financial and environmental benefits arising from RIL implementation and make it attractive to the timber companies.

4.4 Research, Innovation, and Technology Application in RIL Implementation

Research and studies into sustainable forest management and RIL harvesting methods under local conditions through the application of new technologies will be intensified. FDS has plans to set up strategic partnerships and collaborative research with educational institutions and private organizations for such purposes. It is also the Department’s aim to leverage on the latest available technology that can be applied in RIL such as the use of an Unmanned Aerial Vehicle (UAV) and Light Detection and Ranging (LiDAR) sensor in pre-felling activities and also the application of mobile chips to replace the conventional method of tree tagging. This is in line with the State’s policy toward broadening technology application and digitalization in every aspect of the economy.

5.0 CONCLUSION

Many consumer countries are putting pressure or introducing policies that will only allow the importation of timber and timber products provided it is verified that the wood material is sourced from forests that are sustainably managed. Sarawak is a major log producer of tropical timber, therefore has to ensure that the timber harvesting operation in the FMUs is in compliance with the international standards on SFM and that the timber industry is capable of meeting the local and overseas market requirements.

With the requirement set by the State Government that all long-term Forest Timber Licenses must achieve SFM certification by 2022, the timber companies operating in the FMUs have to change their mindset from focusing on log extraction by conventional means to using RIL method, which also takes into consideration protection of the environment and reducing global climate change.

Since 2019, timber companies working in the FMUs that are committed to achieving certification have been practicing RIL in their timber harvesting operation to prepare for the field auditing. They have encountered numerous difficult experiences and problems along the way. However, with training and guidance provided by FDS, 42% of the FMUs that have committed to certification are already certified under MTCS as of March 2022.

FDS as the regulatory agency will continue to monitor the effectiveness of RIL practice through frequent assessment and field testing of the RIL Guidelines to identify the gaps and also through joint research with institutions of higher learning and relevant organizations. Joint assessments with the timber companies on the financial and environmental benefits of RIL implementation in certified FMUs will also be carried out so that the timber companies will have a better perception of RIL.

RIL training in the form of short courses and field practical sessions for the forest workers, supervisors and senior management of the timber companies will also be a priority to ensure that the RIL techniques as outlined in the RIL Guidelines can be implemented effectively and efficiently.

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