PROTECTION OF INTACT FOREST LANDSCAPES (IFLs) IN THE BRAZILIAN AMAZON CERTIFIED FOREST MANAGEMENT UNITS

ASSESSMENT OF SHORT AND LONG-TERM IMPACTS OF THE MANAGEMENT AND PROTECTION MEASURES ASSOCIATED WITH THE IMPLEMENTATION OF MOTION 65/2014

FULL REPORT

GBS ME consulting

September 30th, 2020

SUMMARY

1- INTRODUCTION

Intact Forest Landscapes (IFLs) are considered as the last remaining large patches of world's forests and other natural ecosystems free of significant human disturbance. Although we consider to be questionable the use of the term 'intact' considering the centuries of history of forest resource use in natural regions, the methodology considers changes in the 'intactness' of such areas as a proxy for forest degradation. IFLs are seen as crucial for biodiversity conservation because such forests are large enough to accommodate large disturbance regimes and, hence, to present higher possibilities in terms of the protection of large-range species populations in the long run.

In 2014, during the FSC General Assembly, it was enacted the Motion 65, essentially directed as a call for action with regards to the development and strengthening of indicators focused on improved IFL protection. This motion advocated for the protection of the 'vast majority' of IFL portions organized in a 'core' area no smaller than 80% of the existing IFLs inside certified enterprises. In the Brazilian context, several discussions and workshops were convened between the membership, certified organizations, Brazilian SDG members and other Latin American representatives since then. Such encounters supported the creation of the first proposal of improved management practices recommendations to be used within IFLs, as a way to set the initial foundations for the creation of the new indicators for the Brazilian National Forest Stewardship Standard (NFSS).

In 2017, in the subsequent FSC General Assembly, Motion 34 was enacted, this time focused on enabling the conduction of regional assessments of the short- and long-term impacts of the management and protection measures associated with the implementation of M65 and the IGIs (international generic indicators). **This report has the main objective to compile the assessments made in the context of IFL protection status and the relation with the certified FMUs in the Brazilian Amazon as a regional response to Motion 34**.

This report, commissioned by FSC Brazil, was developed from assessments conducted by the team of **GBS ME consulting,** with technical support from the **Institute for Forest and Agriculture Management and Certification (IMAFLORA).** The technical team responsible for this report is briefly described below.

Marco W. Lentini. Forester, M.Sc. Forest Resource Economics, independent forest consultant. Twenty years of working experience in conservation issues, mainly in the Brazilian Amazon. Expertise in forest management, forest production and conservation, monitoring, auditing, transparency, corruption and governance in the forestry sector. Manager of environmental and forest programs in civil society organizations until February 2019.

Mayte B. Rizek. Geographer, M.Sc. environmental sciences, Ph.D. in Public Policies, Strategies, and Development, and visitor at the University of Freiburg, Germany. Post-doctorate at the Agricultural Sciences and Technologies Center. Since 2005 has worked with forest management and social issues related to forest communities in the Brazilian Amazon. Through CIFOR, has coordinated the socioeconomic data collection in rural communities in the Legal Amazon, collaborated in the publication of the Brazilian national profile of REDD+, and conducted research evaluating the Action Plan for Prevention and Control of Deforestation in the Legal Amazon. Since 2013 also serves as an independent auditor in social aspects for FSC and CERFLOR certification schemes.

Rodney Salomão. Forester, specialist in Statistics and Geoprocessing. Twenty-three years of work experience in the Brazilian Amazon on issues of conservation and sustainable development, acting mainly in the areas of thematic cartography, geographic information system, remote sensing, forest monitoring, mapping coverage and land use by drone and satellite images, environmental zoning, rural property georeferencing, and geospatial analysis.

Julia N. Costa. Student of forestry (Piracicaba, Brazil), trainee of GIS and remote sensing techniques at IMAFLORA.

This report is organized in six major sections, including this first introductory remarks. Section two defines and describes the methods for IFL mapping and identification, as well as the importance of such areas for biodiversity conservation. Section three briefly describes the relation between IFLs and the FSC certification system (starting from the Motion 65), and how occurred the discussion process in Brazil that led to the creation of the indicators currently described in the new Brazilian standard draft. Section four formally described the methods and sources used in the assessments conducted. Section five describes in a detailed manner the results from the assessment conducted, emphasizing the environmental, social and economic aspects divided in short- and long-term impacts. Section six summarizes the authors' major findings and final remarks.

2- INTACT FOREST LANDSCAPES: IMPORTANCE FOR BIODIVERSITY PROTECTION AND RECCOMENDED ACTION FOR PROTECTION

Methodologic considerations. Intact Forest Landscapes (hence IFLs) are considered as the remaining large patches of world's forests and other natural ecosystems free of significant human disturbance, formally defined as "*an unbroken expanse of natural ecosystems within the zone of current forest extent, showing no signs of significant human activity and large enough that all native biodiversity, including viable populations of wide-ranging species, could be maintained*" (http://www.intactforests.org/). Although it would be questionable the validity of using the term 'intact' considering the long history of forests in relation to the use of their resources, the methodology considers changes in the 'intactness' of such areas as a proxy for forest degradation (Potapov et al. 2008). IFL methodology was published in 2008 in which the identification and mapping of such areas considers undisturbed ecosystems since the average date of 1990. The criteria of a given forest, although undisturbed, to be considered as an IFL, takes into account: (a) a total area larger than 50k ha; (b) at least 10 km wide at the broadest portion of the fragment; (c) at least 2 km wide in corridors or appendages to areas that meet these two initial criteria (Potapov 2008; Zhuravleva 2013).

To be considered undisturbed, a given IFL needs to be safe over time from significant evidences of human activity, highlighting: (a) settlements; (b) infrastructure used for transportation between settlements or for industrial development of natural resources, including roads[1], railways, navigable waterways (including seashore), pipelines, and power transmission lines; (c) agriculture and timber production; and (d) industrial activities during the last 30-70 years, such as logging, mining, oil and gas exploration and extraction, etc. (http://www.intactforests.org/).

According to Potapov (2008), disturbed areas classified as non-IFLs include only recent and intensively used areas with significant importance. As the authors state, "*low-intensity and old disturbances, such as shifting cultivation in ancient times, forest grazing, low-intensity selective logging, and hunting, was treated as background influence and not eliminated*". In 2000, the authors found 1.3 billion ha of forest considered as IFLs in the world, equivalent to 23% of the world´s forests. Around 90% of the IFLs, in this same date, were located in tropical/subtropical forests and in boreal forests. IFLs were distributed in 66 countries, but with special concentration in Canada, Russia, and Brazil, which represented 64% of the total world's IFL forests, but only approximately 10% of such areas were considered as strictly and formally protected.

Importance for biodiversity. Once IFLs are large enough to accommodate large disturbance regimes and to present higher possibilities in terms of the protection of large-range species populations in the long run, these areas are considered as crucial for biodiversity conservation. There are a few examples documented in the literature about the importance of maintaining large extents of forests for the conservation of large-body emblematic species, such as the Canadian boreal caribou, or the reindeer and the Siberian musk deer in Russia, often declared as threatened by industrial large scale logging. In locations such as some African forests and Indonesia, although logging not necessarily would present a direct threat to large animal species such as elephants and apes, an indirect negative effect is that roads opened for timber harvest are frequently used by hunters and poachers interested in these animals and in their body parts (Breukink and Terrana, 2017). IFLs are also acknowledge for their importance in terms of climate change, since large amounts of carbon are stored in the living and dead biomass and pool soils that could be released during uncontrolled logging operations. This could be especially true in a few tropical forests in which the larger trees, often seem like a priority under an economic point of view, also maintain a disproportionate share of the forest carbon storage.

[1] Unpaved trails are considered as an exception.

How to guarantee improved protection of existing IFLS? Strict and formal protection have been indicated in the literature as the main alternative to maintain IFLs in the long run – in other words, the creation of IUCN protected areas of categories I-III[2]. However, even the authors of the mapping methodology acknowledge that this task will be difficult to achieve due to socioeconomic reasons (Potapov 2008). Citing the authors, in situations in which reconciling different land use needs is required, "*an appropriate strategy may be to divide IFLs into zones (…) which would entail creating zones of strict nature protection (where the goal would be to preserve intactness values) and of low-impact management (in which limited forestry operations or small-scale farming with strict observance of ecological norms could take place)*".

A similar rationale is defended by WWF in an article edited in 2017 (Breuking and Terrana). Authors advocate that conducting credible forest certification might be the best tool to protect these areas in the long run, considering the biodiversity that IFLs maintain and the needs of local populations in relation to their own livelihoods. By looking at the specialized literature, the authors conclude that sometimes FSC-certified enterprises might lose habitat specialist wildlife species with more narrow ecological niches, but forest management is capable of maintaining much of the composition, structure and processes of IFLs/HCVs. However, authors acknowledge that current practices of reduced impact logging will need adaptation to be conducted within IFLs in a way to better conserve biodiversity, being some of the most important adaptations an improved planning and allocation of infrastructure and the protection of extremely large trees in a tropical forests due to their importance in terms of carbon sinking and biodiversity conservation.

[2] See https://www.iucn.org/theme/protected-areas/about/protected-area-categories.

3- INTACT FOREST LANDSCAPES PROTECTION IN THE FSC CERTIFICATION SYSTEM

In 2014, one of the key facts occurring at the FSC General Assembly was the enactment of Motion 65, essentially directed as a call for action with regards to the development and strengthening of indicators focused in improved protection of Intact Forest Landscapes (IFLs). This motion already advocated for the protection of the 'vast majority' of IFL portion organized in a 'core' area not smaller than 80% of the existing IFLs inside certified enterprises.

In the Brazilian context, discussions within FSC membership started shortly after the enactment of the Motion, in a workshop carried out in São Paulo in December 2015. That was one of the first meetings of the Brazilian standard development group (SDG) able to discuss the issue in a deeper way. A second meeting of the membership, counting with Brazilian SDG members and other Latin American representatives would also occur in São Paulo to establish the first basis of improved management practices to be used within IFLs, as a way to create the first initial foundations for the creation of the new indicators for the Brazilian Amazon (NFSS), in July 2017.

Since 2016, FSC has developed an advice note (FSC-DIR-20-007 EN, last version 01/02/2017) stating that, while new standards and indicators are not formally set in place, the rule is to protect IFLs in certified FMUs. Therefore, until the new standards for each country are not approved, management in FSC certified operations (in Brazil basically the ones located in the Amazon) might continue as long as they (i) do not impact more than 20% of Intact Forest Landscapes within the management unit; (ii) do not reduce any IFLs below the 50,000 ha threshold in the landscape, and (iii) that maps on IFLs (produced by GFW or in a independent way by using the same methodology) should be used as the baseline. The advice, with its validity starting by January 1st, 2017, also stated that non-conformities will result in Corrective Action Requests. In practice, due to the principle of precaution, for the means of enforcing the advice note, since that date, certification bodies are considering all forests submitted to logging within IFLs located in certified FMUs to calculate the 80% threshold. That measure has been taken, also, in the interest of avoiding cases in which the termination of the certificate would be advisable[3].

In 2017, in the subsequent FSC General Assembly, a new Motion was enacted by the membership (34/2017), this time focused on enabling the conduction of regional assessments of the short- and long-term impacts (positive and negative) of the management and protection measures associated with the implementation of M65 and the IGIs used as a starting point for the development of national standards. The Motion also stated that such evaluation should consider environmental, social and economic dimensions. This report attempts to compile the main assessments made in Brazil in 2020 as the regional study addressing Motion 34.

[3] According to the FAQ produced by FSC with the aim of helping in the application of the advice note (v. 1.3, 2018), in cases where the threshold (of 80% protection of decreasing IFL patch size to less than 50k ha) have been clearly exceeded and the activities result in significant long term damage (e.g., clear-cut harvesting, permanent road construction), the CB shall terminate the certificate immediately.

4- STUDY METHODOLOGY

This study encompasses a conjunction of methods and instruments in a way to analyze the short- and long-term impacts (positive and negative) of the management and protection measures associated with the implementation of M65 and the indicators drafted in the new Brazilian NFSS – including its Appendices. The assessments were conducted by the team formed at GBS ME consulting with the technical support from the Institute for Forest and Agriculture Management and Certification (IMAFLORA), a civil society organization (CSO) with over 20 years of experience in the areas of forest certification, forest management, and support for the development of socioenvironmental friendly rural productive chains.

(1) Forest management public reports. It was compiled information about the total certified area, set asides, effective management area, number of jobs generated, among other parameters related to logging intensity and cutting cycle from FSC public reports (available at FSC info), being the last check for new data or updated reports conducted on September 1st, 2020. Due to confidentiality issues, the only data that will be presented in this report listing the certified FMUs were gathered in these reports, being the remaining analyzes presented in an aggregated way. For the analysis of the enterprises it was established the baseline date of January 2019, listing all the FMUs certified in the Amazon by this date (18 enterprises).

(2) Semi-structure questionnaire used for interviews[4]. It was developed and applied (after formal approval from FSC Brazil) a semi-structured questionnaire addressing the main environmental, social and economic aspects of the Motion 65 implementation and the expected contributions from the drafted indicators in these dimensions. Although it was attempted to gather quantitative data in this questionnaire, it should be seen essentially as a qualitative assessment on the respondents' perceptions, as well as short- and long-term impacts. An important caveat here, as will be presented later, is that most of the certified FMUs in the Amazon did not start the process of formally assessing the impacts from the implementation of Motion 65 and/or the proposed Brazilian indicators, in a way that measuring in a more quantitative way the relative impacts was proven to be difficult. At the end, 19 interviews were conducted, being sampled 10 experts, 8 certified FMUs and one FMU in process of certification. The 8 organizations sampled represent 44% of the area certified by FSC in the Amazon. Due to the Covid-19 pandemic, interviews were conducted remotely between April and early September 2020.

(3) Financial and economic data case studies. The authors were able to gather financial and economic data from two certified FMUs in the Brazilian Amazon, which were used for the assessment of economic impacts from the implementation of Motion 65 and for simulations of the relative impact coming from alternative protection scenarios (30% and 50% IFL protection). Despite the small sampling, these two cases were considered as representative of an important proportion of certified FMUs in the Amazon, being one company operating in public forest concessions and one in private lands. Several attempts were conducted to widen the sampling, but these efforts were not successful. It is believed that the fact that most certified companies have not started the process of estimating the impacts from the implementation of Motion 65 is the main reason which prevented widening the sampling in the economic case studies.

(4) Consultation to experts. A few experts were consulted in a way to gather parameters (timber prices, average logging intensity and productivity, timber sale volumes) to be used in economic and financial assessments conducted in this work. Consultation to bibliography, FSC normative framework, and studies were also used as complimentary information.

(5) Assessments in GIS environment. Remote sensing and geographical information system analysis were conducted in QGIS software using geospatial information from several sources (references in Table 1). The Albers - SIRGAS 2000 projection system was used to calculate the areas in GIS environment. Four types of analyzes were conducted:

a) General characterization of IFLs in the Brazilian Amazon in different land use and land tenure categories (protected areas, indigenous territories and community lands), estimating losses between different IFL mapping periods (2000, 2013 and 2016).

b) Assessment of certified FMUs in the Amazon with regards to the area under forest management and the overlap with IFLs in different mapping periods (2000, 2013 and 2016).

[4] The questionnaire used is presented in the Appendix 2 of this report (Portuguese version).

c) Projected area of IFLs in the Amazon and in the certified FMUs in 2019 by overlapping the 2016 IFL map with spatial information on deforestation (official sources such as Prodes and Deter, as well as the independently generated mapping leaded by IMAZON - SAD), and on forest degradation induced by logging (SIMEX mapping from IMAZON, see Cardoso et al. 2020).

d) Assessment of the trajectory of individual IFL polygons over time (covering the mapping periods of 2000, 2013, and 2016), with a particular focus over the polygons overlapping the certified enterprises in the period 2000-2019. Satellite imagery (Landsat-7/ETM+ and Landsat-8/OLI) was used for the periods 2000-2019, coming from Google Earth Engine platform, in a way to compare the occurrence of deforestation and forest degradation (due to logging and the construction of roads) on the ground with the registered changes in IFL coverage in the mappings of 2013 and 2016. That assessment was able to generate a few insights about the features occurring on the ground that have being responsible for the loss of IFLs in the mapping periods of 2013 and 2016.

Table 1. Geospatial information used in this report, respective dates and sources.

Spatial information	***Year/period***	***Source***
Certified FMUs	2019	Provided by the companies. FMUs in concessions are publicly available (BFS and IDEFLOR-Bio)
Cities and urban areas	2017	Brazilian Institute for Geography and Statistics (IBGE)
Deforestation in the Amazon	1990-2019 2019 2019	PRODES (National Institute for Spatial Research – INPE) Deter/INPE SAD/IMAZON
Forest degradation induced by logging (Simex)	Up to 2019	IMAZON
Intact Forest Landscapes	2000, 2013, 2016	www.intactforests.org
Land tenure and land use		
Federal public lands	2017	Brazilian Forest Service (BFS)
Indigenous territories	2017	National Foundation for Indigenous Peoples (FUNAI)
Protected areas	2017	Ministry for the Environmental (MMA)
Rural settlements	2018	National Institute for Colonization and Agrarian Reform (INCRA)
Registered public and private lands	2018	INCRA
Military lands	2014	IBGE
Maroon lands	2018	INCRA
Rivers and lakes	2017	IBGE
Roads and railways	2016	National department for infrastructure (DNIT) and IBGE

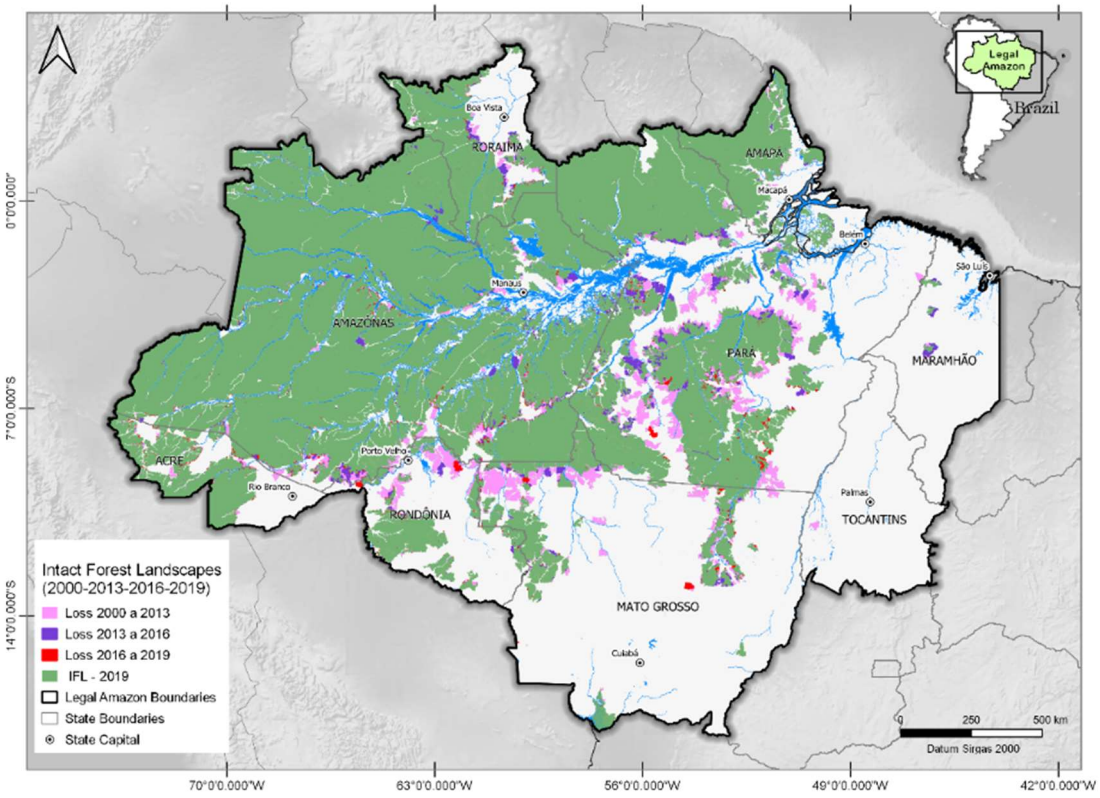
(6) Validation with key stakeholders. In a way to validate the major findings of this assessment and better develop the rationale for the discussions and conclusions provided, two sections with key teams were organized: (a) a meeting with key forest staff from IMAFLORA, in September 21st, 2020; (b) a meeting with FSC Brazil executive secretariat, key members of the national board, and Brazilian members in the international board, in September 24th, 2020.

5- RESULTS AND DISCUSSION

5.1- GENERAL ASPECTS OF INTACT FOREST LANDSCAPES IN THE BRAZILIAN AMAZON

Total area of **Intact Forest Landscapes (IFLs)** in the Brazilian Amazon was 246 million hectares in 2000, roughly equivalent to 19% of the total area of IFLs identified in the world by Potapov (2008). It was estimated that, between 2000 and 2019, around 20 million hectares of IFLs were lost, equivalent to 8.2% of the IFL coverage in 2000 (Table 2).

Figure 1. Development of Intact Forest Landscapes (IFLs) in the Brazilian Amazon in the period 2000-2019 (projected).



Not surprisingly, most IFLs losses were concentrated in the regions closer to the 'arc of deforestation', alongside the major official roads, and new regions considered as recent expansions of the logging frontier (Lentini et al. 2019), such as western Pará, extreme northwestern Mato Grosso, southern Amazonas, and Acre (Figure 1).

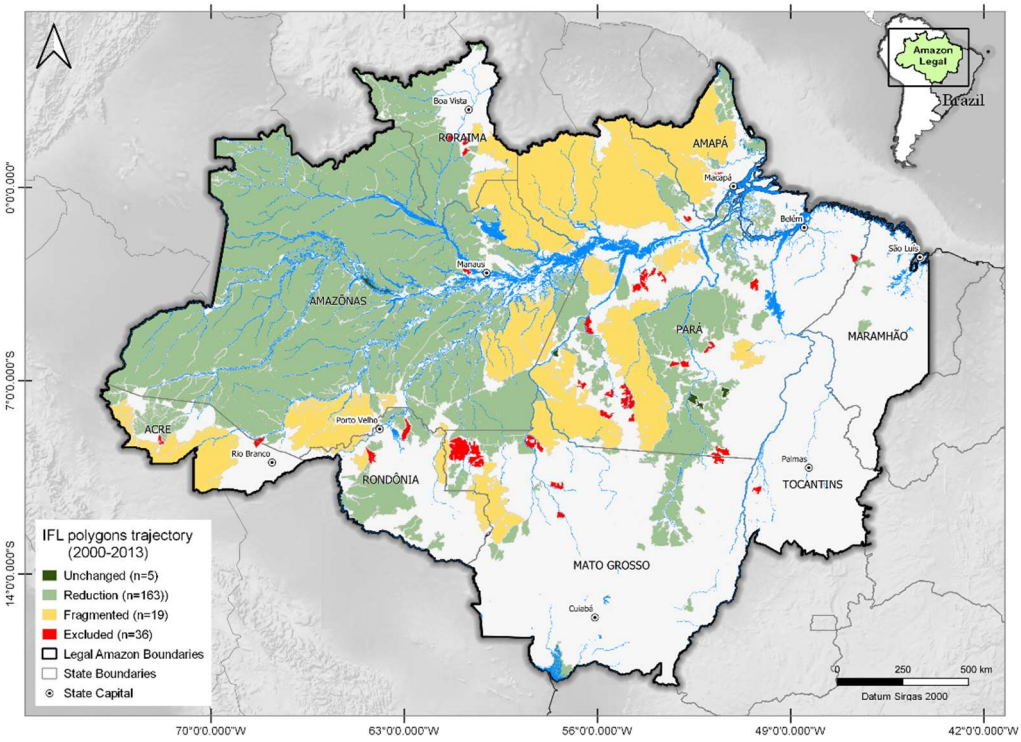
Table 2. Intact forest landscapes (IFLs) development in the Brazilian Amazon since 2000, with a projected loss estimated by 2019.

Intact forest landscapes	*Forest cover (ha)*	*Non forest cover (ha)*	*Total (ha)*	*Rate of loss (over 2000 status)*
Area in 2000	**236,338,680.0**	**10,008,784.09**	**246,347,464.14**	**-**
Loss between 2000 - 2013	14,875,686.1	386,351.87	15,262,037.95	6.2%
Loss between 2013 - 2016	3,963,430.4	171,948.43	4,135,378.81	1.7%
Loss between 2016 - 2019	692,642.7	3,972.84	696,615.52	0.3%
Project area in 2019	**216,806,920.9**	**9,446,510.96**	**226,253,431.85**	**-**

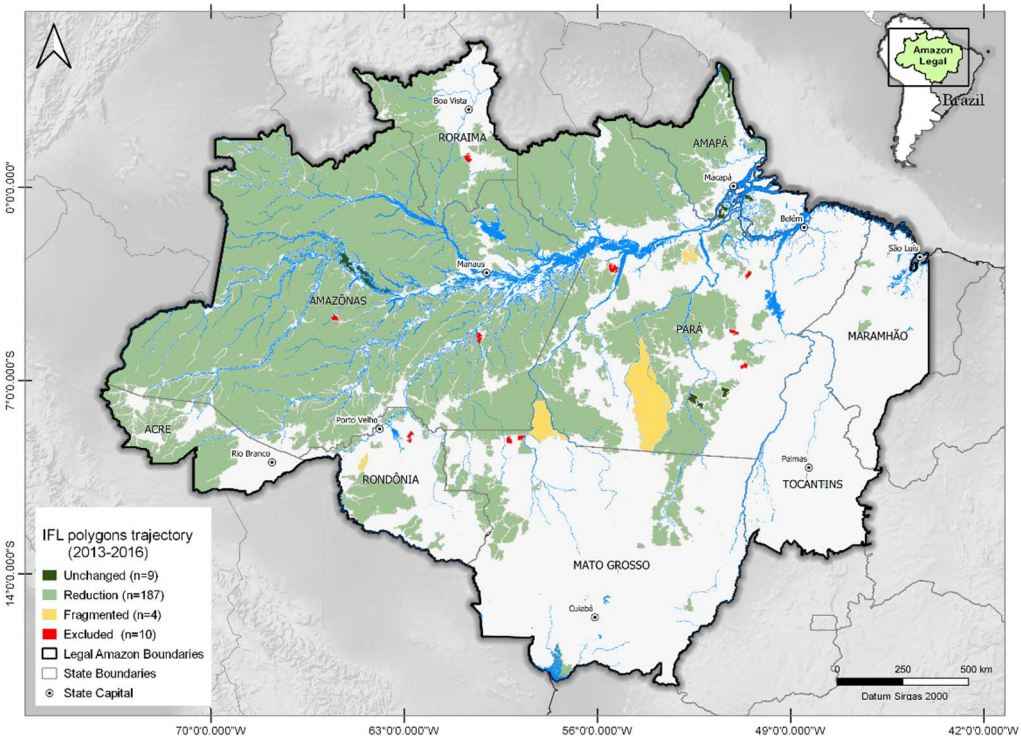
When the IFLs polygons were analyzed, a similar finding became clear. In the period of 2000-2013, for example, most of the IFL polygons that reduced in size or fragmented were located in a wide arc going from northwestern Pará until Acre, passing closely to the new logging frontiers in the Amazon (Figure 2A). As a matter of fact, from the 223 IFL polygons found in the Amazon in 2000, around 163 (~80%) were reduced in size and other 8% were fragmented by 2013 (see Figure 2).

Figure 2. Dynamics of IFL polygons assessed in different time periods, 2000-2013 and 2013-2016.

(A) 2000-2013



(B) 2013-2016



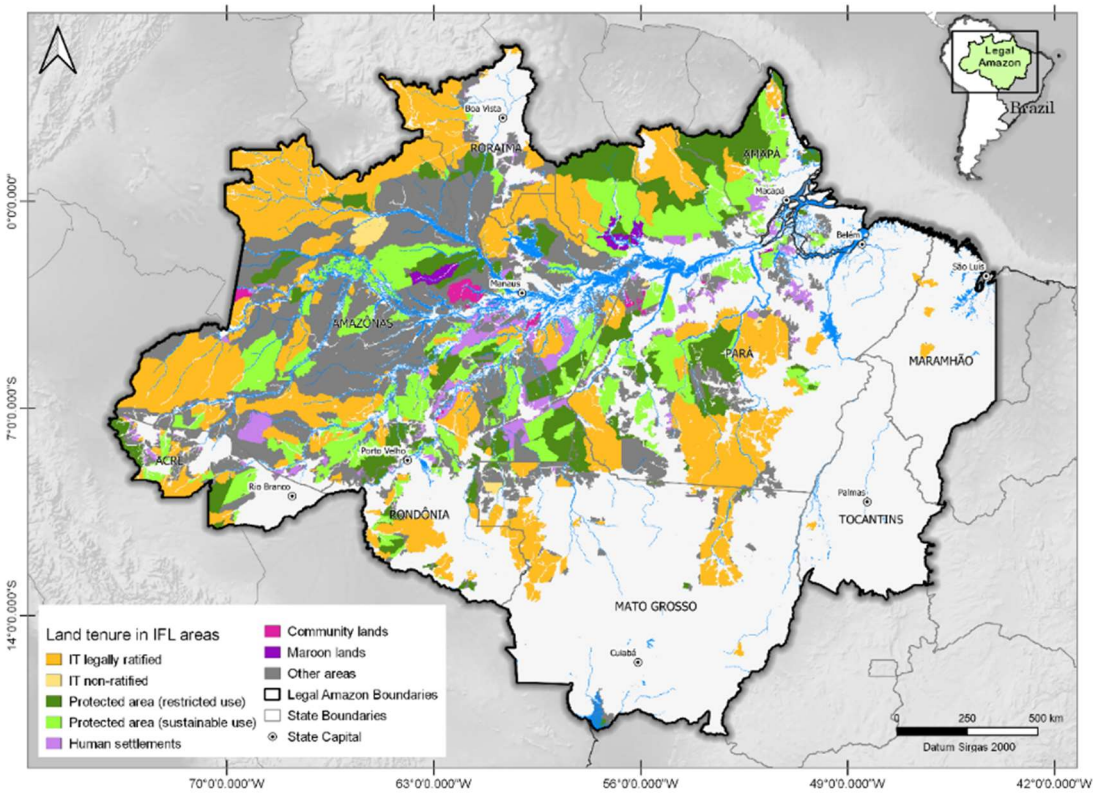
IFL and land tenure. In 2000, around 65% of the IFLs in the Brazilian Amazon were located in protected areas and indigenous territories (161 million ha), around 5% in community lands (settlements and areas of traditional and maroon populations), and 30% in unsettled lands and private lands (Figure 3, Table 3). There is a large difference in the rate of loss of IFLs in different land tenure categories in the period 2000-2016. While the average rate of loss for protected areas and indigenous territories was around 3.4% during these 16 years, in community lands it was equivalent to 20% (achieving almost 25% in rural agricultural settlements), and 32% in private lands.

Table 3. Intact forest landscapes development in the Brazilian Amazon, 2000-2016, by land tenure category.

Land tenure	*Total area (ha)*	*Intact Forest Landscapes*				
		2000	*2013*	*2016*	*Total loss (2000-2016)*	*Rate of loss (2000-2016)*
Indigenous territory ratified	108,687,821.8	86,209,063.0	84,515,024.3	83,749,566.4	2,459,496.6	2.9%
Indigenous territory non-ratified	2,086,333.0	1,739,054.2	1,479,942.1	1,470,725.1	268,329.2	15.4%
Protected area (restricted use)	36,411,749.1	31,516,556.1	30,846,720.4	30,658,300.6	858,255.5	2.7%
Protected area (sustainable use)	50,625,382.7	42,005,830.1	40,298,505.1	40,154,689.4	1,851,140.7	4.4%
Subtotal – Protected areas	**197,811,286.6**	**161,470,503.4**	**157,140,191.9**	**156,033,281.4**	**5,437,222.0**	**3.4%**
Human settlements	33,328,670.0	8,746,475.9	6,915,491.4	6,596,592.9	2,149,883.0	24.6%
Community lands	1,778,625.3	1,391,175.8	1,307,232.4	1,280,763.1	110,412.6	7.9%
Maroon lands	2,358,378.3	1,469,825.9	1,403,676.3	1,390,486.1	79,339.8	5.4%
Subtotal – Community territories	**37,465,673.7**	**11,607,477.6**	**9,626,400.1**	**9,267,842.2**	**2,339,635.4**	**20.2%**
Unsettled lands	**31,041,461.8**	**29,210,542.5**	**28,564,939.9**	**28,206,557.8**	**1,003,984.7**	**3.4%**
Private lands	**121,757,696.6**	**27,911,711.1**	**20,434,246.7**	**18,886,561.1**	**9,025,150.0**	**32.3%**
Other lands[1]	**113,571,781.2**	**16,147,229.5**	**15,319,647.6**	**14,555,804.8**	**1,591,424.7**	**9.9%**
Total	**501,647,899.9**	**246,347,464.1**	**231,085,426.2**	**226,950,047.4**	**19,397,416.8**	**7.9%**

[1] Lands without a defined tenure status in the geographical databases used, including military lands, state level unsettled lands and private lands non-regularized.

Figure 3. Intact forest landscapes by land tenure/land use category in 2000.



Mechanisms and policies in place to protect IFLs. It is clear from the estimates presented on Table 3 that the most promising mechanism to protect IFLs in the Brazilian Amazon is through improved protection and management effectiveness of protected areas such as Indigenous Territories, parks, natural reserves and other restrict use protected lands (correspondent to IUCN categories I and III). It is worthwhile to mention that Brazil leads what is considered the largest project in the world in terms of tropical forest protection, called ARPA (acronym in Portuguese for Amazon protected areas). ARPA was created in 1998 with the original intention of protecting 10% of the biome (~ 40 million ha) by supporting the creation and consolidation of protected areas in the Amazon (later this target was widened to 15% of the biome). ARPA already encompasses 117 protected areas in the Amazon, equivalent to 60.8 million hectares (http://arpa.mma.gov.br). Supporting programs such as Arpa and making sure that a larger number of protected areas can achieve a higher level of consolidation would make a lot of sense under the perspective of protecting IFLs in the Amazon.

From the protected areas categories, non-ratified indigenous territories are the ones suffering the great rate of loss due to forest degradation and deforestation. As a matter of fact, recent studies have shown the growing pressure and increased rates of deforestation being experienced over protected areas in the Amazon in the last few years (e.g., Souza Jr. et al. 2019). The same rationale is valid for the unsettled lands in the Brazilian Amazon (~30 million hectares)[5] which concentrates a large portion of IFLs in public lands (~28 million hectares in 2016), and are losing such features due to land grabbing and forest degradation. Ordering those territories and signing a formal destination to these lands would guarantee additional protection for IFLs located in these areas.

[5] A recent study published by Azevedo-Ramos and Moutinho (2018) estimated 70 million hectares of public unsettled lands in the Amazon. That work should serve as a reference in terms of what is indeed considered as unsettled lands segregated from the categories such as 'private lands' and 'other lands' presented in Table 3. Since the process to assign areas to private owners in the Amazon is still largely auto-declaratory, significant differences in the estimates presented by different sources is expected.

5.2- GENERAL ASPECTS OF INTACT FOREST LANDSCAPES IN THE AMAZON CERTIFIED ORGANIZATIONS

By early 2019, according to information gathered in public reports, there were 18 FSC certified FMUs in the Brazilian Amazon, composing a total certified area of 1.6 million hectares (Table 4). Most of the enterprises (15 out of the 18) were certified for timber harvesting, and the other three for the management of non-timber forest products (NTFP). Six FMUs (*Coomflona, Cooperar, Amazonbai, Garah Itxa, Arimum*, and *Soenama*) are considered as community forest management enterprises.

Table 4. List of FSC certified FMUs in the Brazilian Amazon (FSC, 2019).

Enterprise	Tenure	Products	Total area (ha)	Protection areas (ha)	Net area (ha)	Jobs generated
Agrocortex	Private area	Timber	190,201.00	9,437.00	180,764.00	97
Amata	Public lands	Timber	33,554.35	8,934.00	24,620.35	28
Bluetimber Flona Paru	Public lands	Timber	50,935.44	8,182.17	42,753.27	61
Cemal Flona Caxiuanã	Public lands	Timber	52,168.03	7,698.25	44,469.78	101
CKBV Jutaituba[1]	Private area	Timber	189,042.26	10,462.43	178,579.83	227
Coomflona Flona Tapajós	Public lands	Timber	82,933.55	15,518.46	67,415.09	60
Cooperar Purus	Public lands	Timber	1,000.00	287.30	712.70	42
Cooperativa do Bailique - Amazonbai	Private area	NTFP	2,916.62	0.00	2,916.62	88
Ebata Flona Saracá[1]	Public lands	Timber	26,898.00	6,476.37	20,421.63	80
Garah Itxa - Metareila	Public lands	NTFP	494.27	0.00	494.27	69
LNGuerra	Private area	Timber	138,701.00	6,937.00	131,764.00	125
Manoa	Private area	Timber	63,876.80	6,511.49	57,365.31	29
Patauá Flona Altamira	Public lands	Timber	209,799.78	58,000.00	151,799.78	48
Precious Woods Amazon	Private area	Timber	308,553.60	46,655.07	261,898.53	200
RESEX Verde para Sempre - Arimum	Public lands	Timber	4,255.44	427.78	3,827.66	41
RRX Flona Altamira	Public lands	Timber	152,066.60	7,603.35	144,463.25	71
Samise Flona Saracá	Public lands	Timber	59,408.34	7,555.86	51,852.48	106
Soenama – TI Sete de Setembro	Public lands	NTFP	91.00	0.00	91.00	9
Total			**1,566,896.08**	**200,686.52**	**1,366,209.55**	**1.482,00**

[1] Enterprises with certification suspended by the time this report was generated.

Also, by early 2019, it was estimated that from the 15 certified FMUs for timber extraction there were 12 with some overlap with IFLs. Four FMUs have a total IFL coverage between 60-80%, and five with a coverage above 80% (Figure 4). As it will be further discussed in this report, FMUs with a large proportion of overlap with IFLs would certainly suffer larger impacts from the implementation of Motion 65 (or alternatively from scenarios that include relatively large proportion of IFL protection).

Figure 4. Histogram of the number of FSC certified FMUs for timber extraction in 2019 in the Amazon region and the proportion of overlapping with IFLs in these forest areas (estimated in 2019) (n=15).

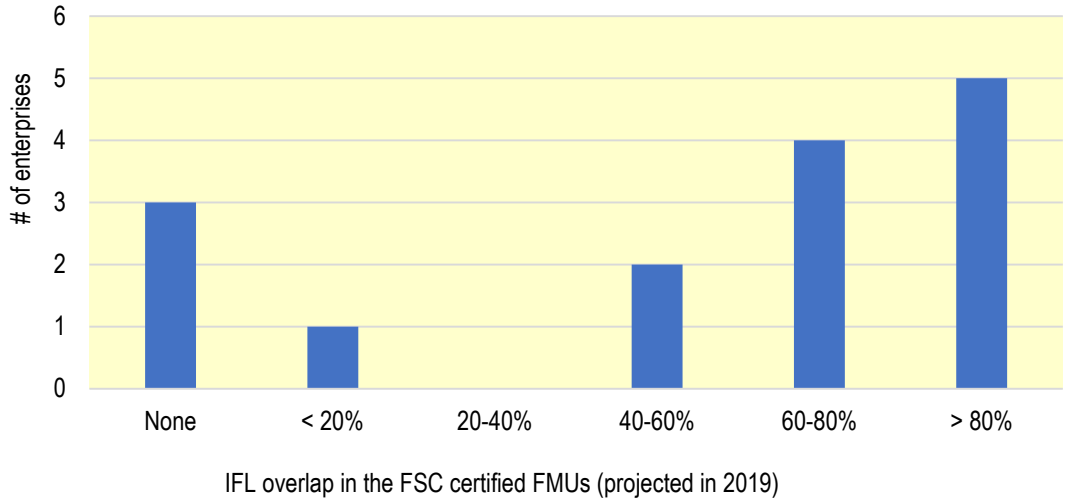
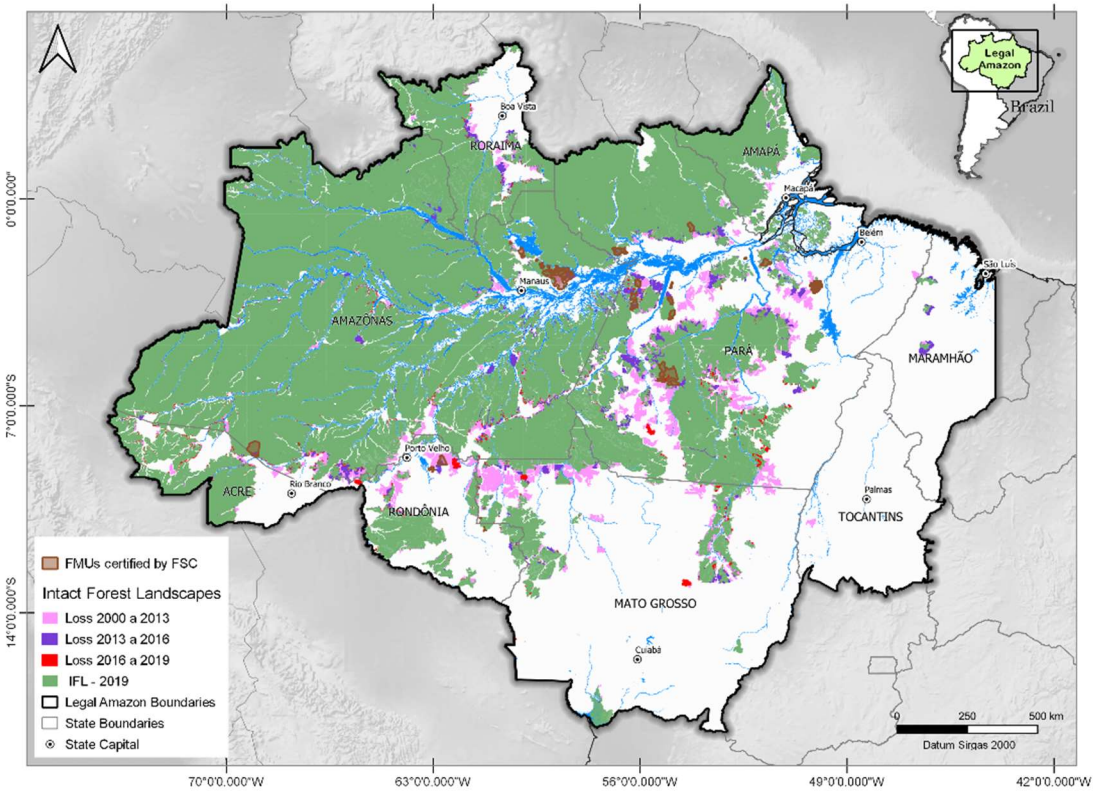


Figure 5. Location of FSC certified FMUs in the Brazilian Amazon and overlap with IFLs, 2019.



5.3- ENVIRONMENTAL IMPACTS FROM THE IMPLEMENTATION OF MOTION 65

Using the year of 2000 as the baseline, there were 1.4 million hectares of IFLs in the FSC certified enterprises in the Brazilian Amazon, the equivalent to 0.6% of the total IFL area in the region. By 2019, within the approximately 1.6 million hectares of certified forests in the 19 FMUs in the Brazilian Amazon, it was projected a total loss of IFL area equivalent to 418k hectares (26%). Virtually all those losses were provoked by the management practices carried out by the certified FMUs. The management practices have influenced in the trajectory of the IFL polygons mainly by decreasing them in size, while no fragmentation or total elimination of such polygons was observed. However, in the period of 2000-2019, two FMUs had the areas of IFLs eliminated from their management areas, as a result from the conjunction of practices carried out inside the FMU and in adjacent areas. Losses were relatively low in FMUs operating in forest concessions in comparison to FMUs operating in private lands (17% against 38% in the period 2000-2019), which was expected, due to the fact that forest management being executed in private lands have being certified through a longer period of time than the ones in concessions.

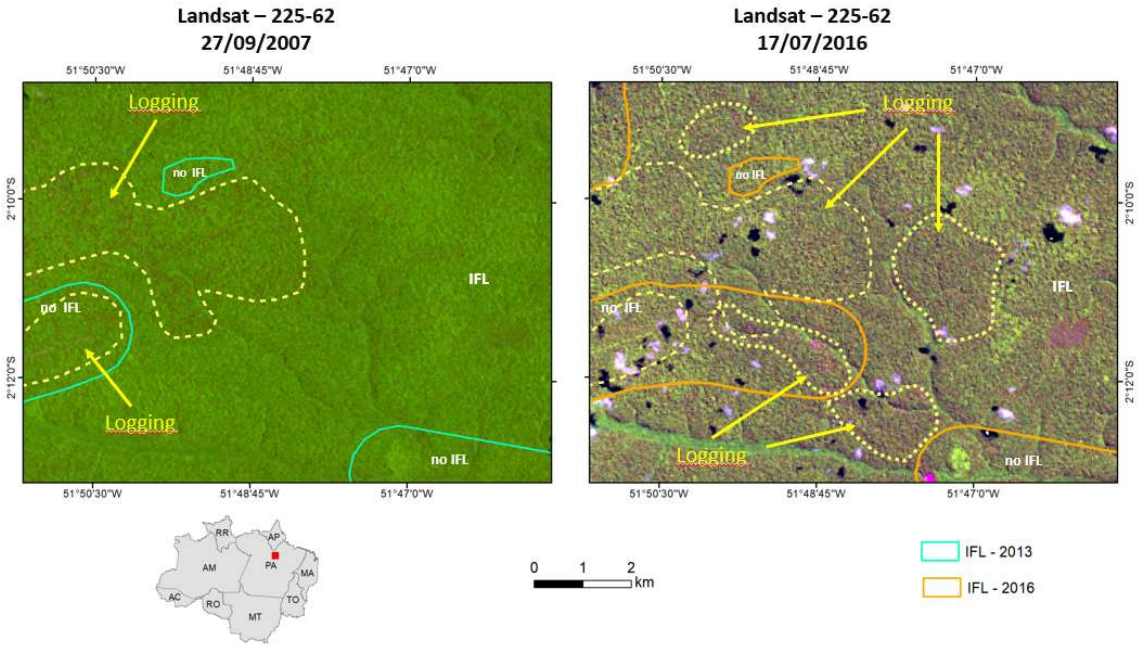
Table 5. Certified area, IFL area in the certified FMUs by 2000 and 2016, and projected loss of IFL within certified FMUs by 2019.

Type of enterprise	*Certified area (2019)*	*IFL area within FMUs (2000) (ha)*	*IFL area within FMUs (2016) (ha)*	*Projected loss of IFLs by 2019 (ha)*
Concessions in public lands logging	584.830,54	568.774,43	501.640,36	95.099,86
Private lands timber extraction	890.374,66	818.169,48	521.280,10	316.101,98
Community forestry for timber extraction	88.188,99	65.483,92	59.633,99	6.436,44
NTFP extraction[1]	585,27	584,54	104,98	480,38
Total	**1.563.979,46**	**1.453.012,37**	**1.082.659,43**	**418.118,66**

[1] Not included Amazonbai, since the vectorial data for this enterprise was not suitable for this analysis (total area of 2,916.62 hectares).

With the use of remote sensing environment, the main reasons why certified FMUs are decreasing IFL polygons in size were analyzed. The conclusion is that the main (if not the only) reason for this loss is due to the construction of infrastructure, essentially logging primary (principal) roads, camps and log concentration yards. No clear signals were found that areas closer to the logging operation (with more subtle opening of the forest and less invasive infrastructure) have being responsible for the declassification of the IFL status in the period of observation. **That would suggest that conducting forest management in a more rigorous manner with regards to tree selection, felling techniques and forest gap opening, skid trailing, and planning and construction of essential infrastructure such as log decks and roads could, indeed, maintain IFLs over time**. If so, the challenge to keep IFLs in certified FMUs might become much more an issue of planning (i.e., where to locate principal roads, camps and essential larger infrastructure) then an issue of setting aside large traits of forests from harvesting. One illustrative example of this finding is shown in Figure 6.

Figure 6. Illustrative example of the spatial features being used for IFL declassification in FMUs, suggesting that areas under fine-tunned management practices with regards to the forest canopy protection remain as IFLs.



It is important to highlight that the expert in remote sensing techniques from IMAFLORA's technical team consulted in this study believes that in further IFL mappings the set of novelties in terms of images temporal windows, algorithms and criteria will make impossible for reduced impact logging practices to continue to prevail as IFLs after logging, since the original intention of Potapov et al. work is indeed improve the algorithm until being able to eliminate all activities that could be classified as 'industrial logging'. That is precisely the reason why, as discussed in Section 3, since the launch of the Advice Note, certification bodies are systematic eliminating all annual harvested areas from the certified FMUs to calculate the remaining area of IFLs undisturbed while the new standard is not approved. If that rationale is indeed correct, it might not exist a 'half-way solution' in terms of conciliating the 'intactness' of IFLs as demonstrated in the assessments published by GFW and the use of these areas for timber production.

As will be further discussed in the next section, few certified FMUs in the Brazilian Amazon have started a systematic planning process for the implementation of Motion 65. As a matter of fact, 90% of the FMU representatives interviewed declared that no special precaution has being carried out in IFL areas other than executing forestry as predicted in the forest management plan. In a very consistent manner, 44% of the total set of people interviewed (including experts) think that the most important measure to maintain IFLs in the long run is basically to implement sound forestry practices, perhaps with a more careful strategy to conserve HCVs 2, which include the Intact Forest Landscapes. When asked about the major improvements in terms of management practices to be implemented within HCV2/IFLs, consistently, 39% stated better selection criteria of trees to be harvested, 39% improved criteria for infrastructure allocation, and 22% a higher monitoring intensity within productive IFLs (see Table 6). It was rich, indeed, the set of recommendations given by stakeholders and experts about attributes to be better monitored within productive IFLs, which were compiled and presented in Table 7.

Table 6. Recommendations given by the interviewed stakeholders and experts about the additional precautions to be taken with forest management practices within Intact Forest Landscapes (n=18).

List of additional forest management precautions within productive IFLs	***% of the interviewed people***
More restrictive criteria in the selection of species to be harvested	38.9%
Stricter criteria for the construction of infrastructure in areas of IFLs being harvested	38.9%
Greater concerns with FMU zoning in relation to the management planning and connectivity in areas intended for preservation and HCVs	22.2%
Greater monitoring intensity in harvested IFL areas	22.2%
No additional measures in relation to what is already being done	22.2%
Increased cutting cycle in areas of IFLs being harvested	5.6%
Does not know - for believing that the IFL conservation discussion still lacks technical parameters of effectiveness and efficacy more clearly tested and established	5.6%
Other	11.1%

Table 7. Recommendations given by the interviewed stakeholders and experts about the attributes that deserve greater monitoring effort within Intact Forest Landscapes (n=18).

Environmental and ecological attributes	***Monitoring tools and methods***	***Monitoring frequency***
Biodiversity, biomass and forest composition	Permanent plots	3-5 years
Harvesting damage and affected area	Remote sensing and field evaluations	Before and after forestry operations
Forest growth dynamics	Permanent plots	Annual
Monitoring of merchantable species and vulnerable species	Forest inventories and permanent plots	Annual
Monitoring of important species for traditional populations (food and subsistence)	Participatory mapping, forest inventories, community-lead participatory inventories	To be defined
Riparian zones assessments (conservation status)	Remote sensing and field evaluations	Annual
Rivers and lakes (conservation status)	Remote sensing and field evaluations	To be defined
Fauna monitoring	Sighting surveys, 'cameras trap'	3 times a year
	ICMBio[6] rapid fauna and flora assessment protocol: in the absolute reserve[7] and harvested areas	Every 3 years
Monitoring of FSC social criteria and indicators	Field visits	Annual
Infrastructure (% of permanent and temporary roads, bridges and drainage structures, post-harvest measures)	Remote sensing and field evaluations, assessment of key indicators and targets	During harvesting: weekly. After harvesting: annually
IFL integrity in the landscapes surrounding the FMU	Remote sensing techniques	Every 6 months
Area surveillance: risk and frequency of forest fires	Remote sensing and field evaluations. Formal planning to combat fires. Fire brigades.	Monthly
Area surveillance: non-authorized activities in the FMU (hunting, etc.)	Remote sensing techniques, field surveillance	Monthly
Area surveillance: deforestation and forest degradation in the IFL/FMU adjacencies	Remote sensing techniques, field surveillance	Monthly

[6] Acronym for the Chico Mendes Institute for Biodiversity Conservation, the agency responsible in Brazil for the protection and management of federal protected areas.

[7] In Brazil the national FSC standard requires that 5% of the management area is reserved from harvesting as a comparative area of logging effects in the long run. In the NFSS the new term that has being used to replace the absolute reserve is 'a representative sampling area'.

5.4- ECONOMIC IMPACTS FROM THE IMPLEMENTATION OF MOTION 65

Total and annual harvests coming from IFLs. Around 90% of the interviewed enterprises had not yet calculated the total revenues and the total harvestable area coming from Intact Forest Landscapes by the time of the interviews. Only 55% started the process of planning related to the harvesting of such areas within the FMU by estimating the occurrence of IFLs and plotting these forests in maps. Despite the fact that there is a high level of concern in relation to the future of certification in their enterprises due to the implementation of Motion 65, also 2/3 of the interviewees stated that no safeguard measure was still taken by the enterprise in the sense of opening alternatives in the case of full implementation of Motion 65 (or a scenario of 80% protection of these HCVs).

Estimates about the harvestable area, however, could be drafted based on data provided by companies willing to participate in the economic case studies, supported by data available in the certification public reports (FSC info). These results are reported in Table 8. By the beginning of 2017, the implementation of measures to protect 80% of the IFL areas within the certified FMUs induced a decrease in 50% of the total harvestable area (from 1.4 million ha to 686k hectares). By simulating alternative scenarios of 50% protection and 30% protection, the estimated annually harvestable area under effective forest management would fall, respectively, in 28% (from 5.1k ha to 3.7k ha) and in 14% (to 4.4k ha).

Table 8. Simulated variation in the harvestable area (during the cutting cycle and annually available) in the FSC certified forest management units (FMUs) due to different scenarios of IFL protection, 2017-2019.

Total area under effective forest management in FSC certified units (2019) (ha)[1]	1,362,707.66
Total area of Intact Forest Landscapes in FSC certified units (2016) (ha)	943,265.11
Estimated total area under effective forest management in FSC certified units under different scenarios of IFLs protected (ha)[2]	
Scenario of 80% of the IFLs protected	686,440.38
Scenario of 50% of the IFLs protected	969,419.91
Scenario of 30% of the IFLs protected	1,158,072.93
Estimated average annually harvestable area under effective forest management in FSC certified units[3] (ha)	5,131.93
Estimated average annually harvestable area under effective forest management in FSC certified units under different scenarios of IFLs protected[3] (ha)	
Scenario of 80% of the IFLs protected	2,667.32
Scenario of 50% of the IFLs protected	3,701.29
Scenario of 30% of the IFLs protected	4,390.60

[1] Not including the setting asides (absolute reserves and other protection lands).
[2] Considering only the certified FMUs for the harvesting of timber products (n=15).
[3] Considering a 30-year cutting cycle. Considering that absolute reserves can be planned to be allocated within IFLs.

Expected decrease in timber sales and revenues due to increasing IFL protection. Due to the limited number of cases encompassed by the economic study, a range for total production of logs coming from certified companies and the revenues associated to this production was estimated using information from the certification public reports, data provided by experts during the interviews, and secondary sources (such as FAO for timber prices). Also is worthy to mention that not all public reports contained information about the average logging intensity for every enterprise, in a way that average data from experts in the interviews was also adopted.

In 2019, the total certified production of logs in the Amazon region was estimated in roughly 850 k m^3 per year, which would be equivalent to 8% of the total production of the region[8] – with a possible variation until an upper limit of 958 k m^3 per year. However, it is unlikely that every one of the 15 FMUs certified would be able to perform in its productive capacity in the same calendar year. The sale of these logs considering average market prices would generate revenues that would vary between USD 70-75 million yearly depending in the specific set of species and market destinations. Under the scenarios of increased IFL

[8] See Lentini et al. (2019).

protection, for the simulations of 80%, 50% and 30% protection, the volumes produced, and the revenues generated would decrease in, respectively, 52-53%, 30-31%, and by 16% (Table 9).

Table 9. Simulated log production (sales) and revenues generated by the commercialization of logs in the FMUs certified by FSC (baseline = 2019) in different scenarios of IFL protection (80%, 50%, and 30%).

Log production (sales) and revenues	***Current situation***	***With protection of 80% of IFLs***	***With protection of 50% of IFLs***	***With protection of 30% of IFLs***
Net timber sales (m^3)[1]				
Lower estimated limit	851,918.82	398,990.09	587,315.29	712,865.42
Upper estimated limit	958,440.77	457,240.84	665,908.44	805,020.16
Total revenues (log production) (USD)[2]				
Lower estimated limit	70,039,902.69	33,413,754.03	48,662,539.54	58,828,396.54
Upper estimated limit	75,569,368.69	36,051,681.98	52,504,318.97	63,472,743.63

[1] Considering the average logging intensities reported in the certification reports available at FSC info. When this information was absent, an average data provided by experts during the interviews was used, being the lower limit of 17 m^3/ha and the upper limit 22.5 m^3/ha.
[2] Considering the average prices reported in the certification reports available at FSC info and case studies. When this information was absent, an average data provided by experts during the interviews was used, being the lower limit of 73 USD/m^3 and the upper limit 86.5 USD/m^3.

Expected financial impacts of increasing IFL protection. Using the economic data from two case studies of typical FMUs certified for timber harvesting in the Brazilian Amazon (one operating in public lands and one in private lands), the net present values (NPVs), the internal rates of return (IRR) and the discounted payback was estimated. Then, it was compared the same financial parameters with the ones simulated for scenarios of 30%, 50%, and 80% of IFLs protection in these FMUs. An important caveat is that both cases have *a priori* a large portion of their FMUs covered by IFLs, over 40%, also representing the reality for the majority of certified FMUs in the Amazon (see Figure 4). Hence, FMUs operating in realities in which the overlap with IFLs in their management units is lower than this threshold would suffer milder economic impacts as the ones simulated in this assessment.

The conclusions from these cases are that any scenario increasing the area of setting asides (in this case for the protection of IFLs) would impose at least some economic burden over the certified enterprises. **In the case of 30% protection, the FMU is still capable of operating in a financial feasible range, despite losses in terms of financial competitivity** (in the first case study the payback, for example, increased from 8 to 13 years, and in the second, from ~5 to 6 years). The second case study, indeed, demonstrated a relatively mild economic impact of a 30% protection scenario in comparison to the first case.

In both cases, however, increasing the IFL protection to 50% or 80% would make the related financial parameters from this decision to become unbearable for the enterprise (Table 10). The same is valid in relation to the balance between the economic costs and benefits from the forest management, or the expected cashflow. In the standard scenario (no additional protection) and in the 30% scenario, after large initial investments, FMUs are able to yield positive cashflows since the first year of operation. On the other hand, the scenarios of 50% or 80% protection would induce negative results during most of the simulated period, equal to 30 years.

Table 10. Simulated financial impacts of increasing IFL protection in typical certified FMUs in the Brazilian Amazon using data collected in two case studies[1].

Case studies	*Expected cash flow[2]*	*Net present Value (USD)[3]*	*Internal rate of return (%)*	*Discounted payback (years)*
Case 1 - standard	Positive cashflow by year 1 onwards.	4,798,699.38	13.4%	8 years
30% protection	Positive cashflow by year 1 onwards.	1,575,294.07	7.9%	12,8 years
50% protection	Cashflow turn slightly positive after year 3.	-1,114,882.18	2.8%	21,1 years
80% protection	Cashflow turn positive only after year 23.	-5,150,146.57	-11.1%	> 30 years
Case 2 - standard	Positive cashflow by year 1 onwards.	8,352,749.80	22.1%	4,8 years
30% protection	Positive cashflow by year 1 onwards.	6,344,363.31	18.0%	6 years
50% protection	Cashflow is always negative considering a 30 years cycle.	-2,265,087.75	-0.6%	> 30 years
80% protection	Cashflow is always negative considering a 30 years cycle.	-15,179,264.32	undefined	-

1 The same impacts would be valid for the scenario of setting aside harvestable areas in the FMU for indigenous and traditional peoples and local communities living in or adjacent to the management unit.
2 Considering investments (equipment, contracts and harvesting areas, and working capital) made at year 0. Initial investments are substantial, varying in a range equivalent to 60%-80% of the NPV in the case studies assessed.
3 Considering as interest rate 5% per year, which is the long-term interest rate proposed by the Brazilian Central Bank. The time horizon considered is equivalent to one cutting cycle (30 years).

These results were supported by the perception of experts and actors interviewed in the study. From the 19 interviewees, 42% think that the proportion of IFLs to the protected in certified FMUs should be inferior to 30%, and none think it is possible to go beyond this point. A third of the interviewees support the idea of having a maximum limit of 10%.

Another crucial caveat is that the simulations demonstrated in Table 10 might represent the worst case in terms of setting aside areas for IFLs protection, in a situation in which these areas could be overlapped only partially with forests already unavailable for logging[9]. It is expected that FMUs dealing with the requirement of IFL protection for a longer period of time will find ways not only to optimize their costs with relation to this new situation, but also the network of protected and inaccessible areas for logging as well – hence, being able to assign less additional productive lands for IFL protection as simulated in this study.

It is also worthy to mention that FMUs working in forest management in the Amazon are already exposed to a larger level of uncertainty and instability, which renders relatively high risks for the forestry business. In the opinion of the experts interviewed, factors such as market instabilities, a certain degree of uncertainty about the future timber stocks in the FMU, the regulatory framework and official control systems in constant change, and the large competition with the timber illegally contributes a lot for this situation. In the opinion of some experts consulted for this project, adding large proportions of IFL protection to this context without a clear plan on how to financially compensate for the additional risks and losses coming from this measure might create a business environment in which certification becomes an endeavor unlikely to be considered by new enterprises. This could be truth even for FMUs improving their practices due to the requirements imposed in forest concessions, which in theory could facilitate such FMUs to have a minimum performance towards acquiring certification.

Expected financial impacts of decreasing logging intensity within IFLs. The standard under approbatory processes built by the Brazilian SDG considered the possibility of conducting forest management within IFLs if improved sustainability measures are used during the harvest of such areas. One of the key requirements in this sense, as stated in the Appendix 'G' of the standard draft, is to implement

9 Such as absolute reserves, riparian zones, non-forest vegetation, and other areas required for protection by Brazilian Law.

a maximum logging intensity in IFLs equivalent to ¾ of the threshold imposed by Brazilian legislation[10]. In other words, that would imply in a **mean average increment (MAI) equivalent to 0.64 m^3 ha^{-1} yr^{-1}**. Although a few simulations were generated to evaluate the financial impacts of decreasing logging intensities (scenarios of 50%, 75% and 80% of the current one), it was realized that most certified FMUs in the Amazon (based on the interviews, certification reports, and experts consulted), are either below this threshold or very slightly above. So, theoretically, this measure could have little financial impacts over the certified enterprises if implemented. A crucial caveat with regards to this subject is that the Appendix 'G' also contains other rules with regards to a more careful tree selection for forest management, which will likely imply in a decrease in the harvesting of high value species considered as rare in the production forests. These requirements might have, at the end, larger economic impact than the decrease in the overall harvesting intensities *per se*.

Subsidies and economic incentives. In Table 11, based on the two economic case studies at hand, it was simulated the level of financial subsidies necessary to compensate for eventual losses due to increasing the area destined to IFL protection (hence, the decrease in the available area for logging). For the 30% protection scenario, for example, if prices for certified timber coming from FMUs with larger IFL protection could rise in a level between 1%-9%, this compensation would be possible. Prices would need, however, to increase substantially in the scenarios of 50% and 80% protection if the intent was to drive such FMUs to the same level of financial performance as experienced in the standard scenario, going towards near a 62% increase in the worst scenario. Maintaining the same prices but adding economic benefits for the FMUs to achieve the same target would imply in relatively high subsidies to be paid for IFL protection in comparison to the estimated NPVs, in a way to argue that such subsidies would be indeed unrealistic.

Table 11. Theoretical rise in prices and economic subsidies that would be necessary to compensate for financial performance losses in the certified FMUs due to increased protection of IFLs using data collected in two case studies.

Case studies and simulations	*Simulated rise in prices to compensate financial losses[1]*	*Simulated subsidies (in year 0) to compensate losses (USD)[2]*
Case 1 - standard	-	-
30% protection	9.0%	3.4 million
50% protection	21.2%	6.2 million
80% protection	62.2%	10.4 million
Case 2 - standard	-	-
30% protection	1.2%	2.1 million
50% protection	7.1%	11.2 million
80% protection	19.0%	24.7 million

1 'Losses' in this case are defined as similar NPV and IRR as the standard simulation (Table 10).
2 'Losses' in this case are defined as similar NPV as the standard simulation (Table 10). It refers to nominal values paid in year zero, although such values could be partitioned and discounted over time in the company's cash flow.

These findings are supported by perceptions of relevant actors and experts in the interviews. Around 42% of the interviewees find it unrealistic to think in any type of subsidies and compensations. A few would however list a few of the possible subsidies given in the form of better FSC market prices, bonuses for environmental performance given by independent markets, opening of new markets with higher prices practiced, and discount in taxes and fees in concession areas[11]. Beyond this, 52% of the interviews revealed that stakeholders do not think it is pragmatic to expect that markets will change to compensate such eventual losses, and a third of them believe there is not any possibilities in terms of finding alternatives in markets and finances that could help in this situation.

[10] Literally citing the related paragraph in Appendix G, 'the maximum exploitation intensity applied in areas managed in intact forest landscapes remains below 3/4 of the annual productivity defined by legislation, that is, 22.5 cubic meters per hectare in a 35-year cutting cycle'.

[11] Note: Concessions in Brazil have offered discount in the royalties collected by the government in the case that concessionaires achieve forest certification. Such discounts (typically 5% of the fees and royalties) are not seeing as enough by experts to even fully compensate for the certification costs.

How stakeholders react to the implementation of M65 and alternative scenarios? Around 2/3 of the representatives from certified FMUs interviewed were positive that the enterprise would give up the FSC certification if Motion 65 is implemented (or the scenario of 80% protection). The final third that would not leave the system was composed by representatives of FMUs certified for the harvesting of non-timber forest products, and hence less exposed to the eventual restrictions imposed by an eventual IFL protection rule.

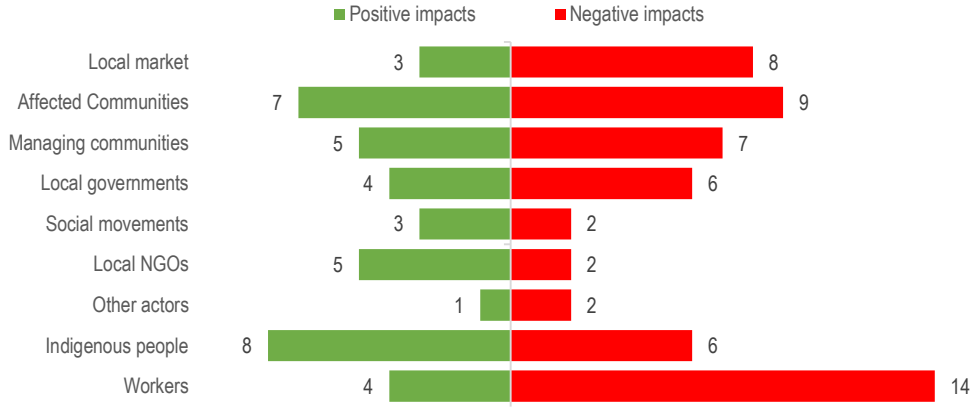
Economic benefits and potential risks. No indirect or intangible economic benefits are foreseeing by the actors and experts interviewed with regards to the implementation of Motion 65. However, 37% of the interviewed stakeholders acknowledge that increasing protection of IFLs might lead to decreasing impacts from forestry operations and augmenting the set of areas available for NTFP harvesting. While, on the other hand, one of the stakeholders interviewed stated that decreasing the area of the FMU available for logging would produce, in the short run, an increased interest in compensate for losses by harvesting NTFPs, and hence competing with the surrounding community for the economic use of such resources. However, 84% of the interviewed stakeholders highlighted that such added benefits from the Motion could be easily outweighed by the larger exposition of the FMU to predatory logging and deforestation if the decision is to drop certification as consequence of the Motion implementation.

About the risks, 80% of the interviewed actors believe to be likely that certified FMUs will become economically unviable due to the Motion 65 implementation. That, according to 42% of the interviewed stakeholders, could encourage land grabbing and deforestation in the areas currently certified. The precisely same proportion of 42% of the interviewed stakeholders also stated that a likely possibility is that the currently FMUs certified by FSC would simply switch to PEFC/Cerflor certification without further concerns about how to implement Motion 65.

5.5- SOCIAL IMPACTS FROM THE IMPLEMENTATION OF MOTION 65

The social returns and costs of implementing Motion 65 are hardly measurable as it varies accordingly to many different factors in the local context and in the certified FMUs. Also, social aspects of FSC certification are divided into external and internal stakeholders, with different, sometimes even conflictive, interests. Thus, Motion 65 implications and impacts need to be evaluated considering the different social interests. The external stakeholders were considered in accordance to which degree the IFLs protection impacts the local market, affected communities, local governments, social movements, local NGOs, indigenous peoples, and other external actors highlighted by the interviewees. The considered internal stakeholders, on the other hand, includes workers and managing communities. Overall, the perception questionnaire respondents pondered more negative impacts on the employment of forest workers, followed by the affected communities and the local markets, while the major positively impacted stakeholders would be indigenous people, followed also by the affected communities (**Figure 7**).

Figure 7. Expected positive and negative impacts of the M65 implementation to different stakeholders.



Expected impacts on jobs generation. The diminished jobs generation was widely cited as M65 negative impact, followed by the loss of the jobs' quality for forest workers. Although the loss in jobs is one of the major impacts suggested by the stakeholders interviewed in the perception questionnaire, the precise amount is not possible to be measured considering the few data available from the study cases. However, a few simulations executed suggest that the number of jobs would fall slightly (less than 5%), focused on professionals that were only hired because the FMU is certified by FSC. However, if the FMUs choose to leave the FSC system, it would certainly imply in a reduction or complete emptying of its social staff and the FMUs would no longer be encouraged to use local labor, affecting also the training offered to surrounding communities.

Jobs' quality loss, in turn, is an important caveat as the certified FMUs shall demonstrate to follow the current occupational health and safety laws and rules, in some cases even extrapolating national regulations. Indeed, according to the authors' expertise, some examples of extra-legal requirements met by FSC certified FMUs would include: (i) the existence of mechanisms for dialogue and resolution of workers complaints, including the representation formally recognized by workers; (ii) the existence of health workers from neighboring communities with opportunities to participate in training on the rescue plan and first aid courses; (iii) salaries for the same functions are not differentiated between genders; (iv) support for the professional reorientation being offered in case of substantial employment reduction; (v) a continuous effort to reduce differences between self-employed and contractors' workers; (vi) internal procedures to ensure that service providers comply with labor legislation and the agreements established with local unions or the recognized workers' representation. Only one interviewee evaluated that increasing IFL protection could generate incentives for other alternative jobs, such as tourism, park ranger, NTFP harvesting and trade, etc. Other positive effects on the social side mentioned by respondents were related to a lower level of dispute over the use of NTFPs and other natural resources.

Expected impacts over affected communities. The benefitting and disadvantaging aspects of the M65 implementation for the affected communities were almost equally pondered. The most remembered disadvantage is the loss of rights by affected communities followed by the impact on the FMU's investments in the communities, as well as a lower level of dialogue and mobilization with these communities (in the case of certification loss). Indeed, the FSC standard currently requires an effective communication identifying the impacts caused by forestry activities, and ensuring answers to questions and the execution of what is possible and pertinent, including investments in social services as the maintenance of roads, actions with schools, support for community organizations, health care campaigns, among others. Besides, the certified FMU communication with affected areas also includes the dissemination of the public summary of the forest management plan, the diagnosis of HCV and communities' customary used areas, as well as the dissemination of trainings and job opportunities. Such requirements are commonly used to minimize impacts on the affected communities and mostly are not guaranteed by national legislation, therefore being potential losses in cases of the certification abandonment motivated by large protection of IFLs.

Also, the assessment of economic data suggests that companies eventually obliged to implement M65 will attempt to decrease their variable operational costs by decreasing the number of employees in the short run, which would incur losses in job opportunities for the affected communities. Another caveat is that FMUs might want to compensate for profitability losses in IFLs in a way to manage NTFPs in these areas - in which case would directly impact communities that currently operate NTFPs in the same forests. Indeed, the authors' experience in the forestry Amazon sector shows that allowing local communities to explore NTFPs in FMUs is commonly adopted as social projects to offset the socio-economic impacts from certified logging. Still, as benefitting aspects on the M65 for affected communities, it was often cited a potential lower dispute over the use of NTFPs and other natural resources, as well as an improved conservation of natural resources.

Expected impacts on the local market. The main impact on the local market cited by the interviewees is the loss of markets, since local suppliers, without certification, would be no longer prioritized, and the collection of taxes and foreign exchange. It would follow the fall in the supply of local jobs and a decrease in local income. Indeed, the FSC standard for the Brazilian Amazon requires that whenever possible and available, the purchase of products and services should preferably be from local sources, generating income and local development as a mitigating action for the socioeconomic impacts of forest management. In addition to generating economic opportunities, the certified FMUs overall shall require and monitor legal aspects on its product and service providers, thus it is not rare cases in which FMUs provide training and support for local market legalization and formalization, implying a virtuous circle that promotes more structured local production chains. Therefore, it is important to consider that limiting the certified production probably would affect the demand for regulated local products and services, which might be a tangible loss given the regional context in the Amazon. At the same time, at least three respondents pointed out that the M65 implementation may reduce the dispute over the use of NTFPs and other natural resources, thereby positively affecting local trade. Nevertheless, in many cases, these NTFPs are already being managed by the affected communities, as discussed above.

Expected impacts for local governments. Losses in the collection of taxes and foreign exchange were the main cited impact for local governments, followed by increasing in illegal and informal activities, hence rural conflicts, and fewer FMUs investments in the affected communities. Due to limitations in the number of study cases available, the economic simulations are not robust enough to measure in a quantitative way the overall decrease in the collection of taxes as a consequence of M65. Nonetheless, such decreases would be expected to be proportional to the revenues presented in Table 9, in which the M65 implementation would provoke a drop around 52-53%.

However, if FMUs leave FSC certification but maintain their activities, there would be no drop-in concession fees, since these are legal requirements for the operation of concessionary enterprises. Investments of the FMU in the affected communities, on the other hand, are additional social gains from FSC certification as it is not required by the Brazilian legislation. An example would be the maintenance of the public roads, as the national legislation predicts it is the local government's responsibility, but FMUs usually conduct this task as a mitigation action for the impacts associated with wood transportation. Another example of loss is that for

current certified FMUs is required the existence of programs in partnership with the government and entities representing the local community, in addition to involvement in projects of social interest with research institutions and universities. Concerning the increase in illegal and informal activities as a result of less enterprises interested in certification due to the implementation of M65, there is a tendency that any of these FSC-related or even legislation-related requirements would not prevail in the same territories in the long run. A specialist and two representatives of certified FMUs mentioned as a potential gain to local governments the better conservation of natural resources.

Expected impacts for indigenous peoples. When addressing the M65 impacts on indigenous peoples, the interviewees recognized more benefitting aspects than disadvantaging ones. The most highlighted argument was the lower level of dispute over the use of NTFPs and other natural resources, followed by better conservation and protecting conditions of natural resources. However, there were at least three interviewees who highlighted latent impacts on the current FMUs investments in traditional communities and three cited the potential increase in illegal activity and rural conflicts, with losses of the communities' rights in case the certified FMUs drop FSC certification. In this scenario, it is important to stress that traditional communities somehow have already their rights protected through national law. Nevertheless, the legal Amazon has historically been a field of political disputes with perverse incentives towards development models that do not necessarily recognize or respect such rights. Thus, the Amazon forestlands without economic destination tend to be more exposed to land grabbing, illegal logging, and consequent loss of rights from the local dwellers and users.

Concerning the traditional knowledge, it was not identified potential impacts from the M65 implementation. With respect to land use priorities and intactness, it is not possible to predict the future land-use in the current IFLs areas in case of prohibiting certified logging. However, an important caveat is that looking at most of the FMU surroundings, it is possible to infer that the economic incentives and subsidies have been leading to less sustainable land use choices, especially in private lands. Also important is the fact that certified FMUs are required to map and monitor attributes of social interest with the surrounding communities. According to the national standard, the data collected together with the communities must be used towards the reduction of impacts in the planning of roads and infrastructures, as well as during operational activities. Examples of operational activity adaptation are the directional cutting to prevent the trees from falling on communities valued species and the higher cost methodology adoption to minimize impacts of building bridges and culverts on watercourses. This mapping of social interest attributes, the impacts monitoring, and the mitigation actions are not business-as-usual in the non-certified Amazon forestry enterprises and might not be guaranteed in private lands currently certified in a scenario of M65 implementation.

Expected impacts on social movements. When asked about the impacts over the social movements in the Brazilian Amazon, two interviewees highlighted the increase in illegal and informal activities and the rural conflicts as disadvantaging effects. At the same time, three respondents emphasized better conservation of natural resources and a potential lower dispute over the use of NTFPs and other natural resources as benefitting aspects. As already exposed, there are only assumptions about the future land-use in the current IFLs areas in case of prohibiting certified logging. Nevertheless, the current certified FMUs need to demonstrate their right to land use and ownership, as well as a fair loss and damage compensation procedure, and a conflict resolution process prioritizing peaceful solutions. Besides, certified FMUs are required to run a socioeconomic diagnosis of communities in their influence area, identifying with these communities their impacts related to forest management activities, assessing the significance, frequency, and intensity of these impacts, and proposing respective mitigating and preventive actions. Again, since these procedures are not the business-as-usual for Amazon forestry enterprises, they are likely to be potential losses in face of M65 implementation.

Expected impacts over local NGOs. Concerning the local NGOs' interests, the most cited argument is that better conservation of natural resources and the lower dispute over the NTFPs and other natural resources as benefitting aspects. As a benefit example, it was mentioned that the majority of NGOs are preservationists, so they would tend to welcome the logging prohibition in IFLs. At the same time, increasing illegal and informal activities, rural conflicts, and losses in the regional positive agenda were pondered as

negative effects of the M65. In other words, these interviewees claim that IFL protection from logging can change the local economic matrix by stimulating companies to drop certification, increasing illegality and, therefore, incurring higher costs for command and control instruments. Authors' experience points out that certified FMUs usually support local NGOs as an evidence of the existence of programs in partnership with entities representing the local community and the involvement in projects of social interest, which is a national standard requirement for FSC forest management in the Amazon.

Other external actors expected to be impacted are wood consumers and buyers. According to the interviewees, restrictions on production could lead to a decrease in the supply of legal and sustainable wood in Brazil. Indeed, under the economic scenarios of increased IFL protection, the volumes produced and the revenues generated would decrease in 52-53%, 30-31%, and by 16%, respectively, for the simulations of 80%, 50%, and 30% IFL protection (Table 9). A caveat is that the IFL protection in certified FMUs does not mean that other IFLs will remain in the same level of protection against illegal activities, running the risk that a lower supply of sustainable sources could encourage an increase in the demand and economic incentives for illegal wood sources, including IFLs illegally harvested in public lands. In other words, despite seeking more effective protection of the IFL attributes, the absence of harvesting in the FMU does not guarantee its protection, and certainly would not improve the protection of other surrounding IFLs.

Expected impacts on communities' forestry. The interviewees exposed positive and negative arguments about the IFL protection impacts in the communities' forestry. The positive perspective most cited regards the lower dispute over the use of NTFPs and other natural resources and the better conservation of natural resources. At the same time, decreasing possibilities for developing communities' forestry projects was highlighted by four different interviewees. Overall, it was considered that, for the certified communities with wood production, the logging productive area reduction leads to a decrease in the number of members, income, and investments in infrastructure in the communities. For non-certified communities' forestry projects, in turn, the impact would be a larger difficulty or fewer incentives for certifying new FMUs. Thus, with a smaller effective forest stock and a cost similar to the large ones, IFL protection might render the certification of the community's harvesting projects to be unfeasible in the Brazilian Amazon.

Expected impacts on recreation. Only one interviewee pondered that the IFL protection against logging could generate incentives for other alternative uses, such as tourism. Nevertheless, it is important to emphasize that FMUs losing certification in private lands could be over time more exposed to deforestation and forest degradation, and then loosing completely the potential for recreation initiatives as well.

Expected impacts on the territory. Most of the interviewees found that IFL protection may harm the job generation in the local forestry sector and almost half of them considers that it may increase illegal activities in the landscape (Table 12). Only two interviewees believe that there will be no direct and significant social impacts arising from the M65 implementation. However, one of them pondered that it may happen indirectly, as the consequence of dropping the FSC certification and/or because of the lack of interest in being certified.

Table 12. Expected impacts at the territory level that could be potentially provoked by Motion 65 implementation in the perception of stakeholders and experts consulted in this assessment (n=19).

Perceptions about territorial impacts potentially brough by the implementation of Motion 65	% of the respondents
It may negatively impact the job generation in the local forestry sector.	53
It may increase illegal activities in the landscape.	47
It may harm social services and projects developed by certified EMFs.	37
It may impact on the access of traditional peoples to benefits from certified forest management.	37
It may impact the health, education and/or safety of the municipalities due to the lower tax collection.	32
It may influence the rights of traditional populations	26
There will be no differences compared to the current standard of forest management	11
Other: negatively influencing economic chains in territories	5

5.6- THE NEW BRAZILIAN NFSS FOR THE CERTIFICATION OF NATURAL FORESTS PROPOSED BY THE SDG

How the indicators proposed by the Brazilian Standard Development Committee contribute to minimize the social and economic burden in relation to IFL protection? The set of indicators proposed by the SDG focused on finding a compromise between the full protection of IFLs as stated by Motion 65 and the partial management of such areas was presented to the stakeholders and experts consulted. In the case of the management practices, most directives are suggested in the 'Appendix G' of the new standard (translated in the Appendices of this report). 42% of the respondents think that, under an environmental point of view, the new indicators and directives from Appendix G do a good job in conserving IFLs in certified FMUs over time[12]. With regards to the potential social losses that could be promoted by the implementation of the Motion 65, in a consistent way, 37% of the respondents feel that the new indicators are also sound. However, such perceptions are not similar with regards to the potential economic impacts that could be brough by Motion 65.

Surprisingly, 37% of the respondents stated that the new standard addresses only partially the competitiveness that would be lost with the implementation of the Motion 65. It is important to note that a quarter of the respondents feel that the indicators address the economic problem in a sufficient manner, and another third preferred to not respond (Table 11). **Also, surprisingly, 50% of the consulted representatives from FMUs certified for timber harvesting feel that the decision of the enterprise would still be leaving the certification system even with the new standard in place**.

Table 13. Views of stakeholders and experts consulted in this study with regards of how much the indicators proposed by the Brazilian Standard Development Committee contribute to minimize the impacts related to the implementation of Motion 65, 2020.

How much the new indicators help?	***Proportion of stakeholders and experts consulted (n=19)***		
	Environmental sustainability	***Economic attractiveness***	***Social losses***
In a sufficient manner	**42%**	26%	**37%**
In a partial manner	32%	**37%**	16%
No effect	5%	5%	11%
Did not respond or think it depends on other conditions	21%	32%	37%

Improved reduced impact logging techniques are capable of avoiding IFL fragmentation? At the end, a straight answer for this question will remain as inconclusive. However, the discussion presented in section 5.3 that most decreases in size in the IFL polygons observed in two periods of time up to now (2013 and 2016) occurred due to practices in the FMUs related essentially to the allocation of relatively large infrastructure - primary roads, concentration yards and camps, as examples. *Ceteris paribus*, without significant changes in the methodology to generate new IFL maps, it would be reasonable to say that conducting reduced impact logging, with special concerns with regards to road specification and allocation, and decreasing openings in the forest, should not interfere in the trajectory of IFL polygons (at least in the portions of such polygons allocated inside the FMUs). As the discussed in the same section, however, there is not in the authors' understanding a definitive ground with regards to this matter.

That said, perhaps one of the more remarkable characteristics of the FSC system is precisely the ability to offer a fair balance between environmental, social and economic dimensions directed to forest management and conservation, having in mind that interests related to these dimensions are often different, if not conflicting. So, in the authors' point of view, M65 or a new rule imposing that large portions of FMUs are reserved from harvesting are measures that run the risk of altering this balance for benefiting in a

[12] An important caveat is that, beyond the directives suggested in the Appendix G, the new standard establish a minimum limit of 10% of the IFLs inside the certified FMUs to be set aside.

disproportional way environmental concerns. It is probably worthwhile to mention that there is extensive literature demonstrating that forest management practices, although altering the composition of forests over time (Piponiot et al. 2019), are able to maintain most of the biodiversity and ecological services provided by these forests (Naves et al. 2020, Breukink and Terrana 2017, Gonçalves & Santos 2008, Braz et al. 2014, Carvalho 2002, Miller et al. 2011, West 2014), including fauna and key animals species (Laufer 2015, Bicknell, 2015, Ramos 2006). Then, based on the authors' experience during the execution of this assessment, interviews with key experts in the sector, results collected since the 'IFL workshop' in São Paulo in 2017, and interaction with the Brazilian SDG, is possible to argue that the draft of the Brazilian NFSS for the management of natural forests represents a very good effort in the direction of reconciling the protection of IFLs and the need for balance (economic, environmental, and social dimensions) in certified FMUs. Also coming from these discussions, below are compiled some major recommendations with regards to forest management within IFLs and/or in FMUs having a portion of the area covered by IFLs.

Box: Major management recommendations with regards to the protection of IFLs in certified enterprises

a) Protect a portion of the IFLs from the harvesting operations. In practice, since 30% of the IFLs protected in addition to the current protected zones might render a relatively large economic burden over the certified enterprises, as simulated in this report, the ideal arrangement is one that integrates the protected area of IFLs with other portions of the FMU already reserved from logging (mainly riparian zones and non-productive areas). Still, under an economic point of view, additional to the already existing protected zones within the FMU, the additional protection of 10% of the IFLs might be the limit for enterprises largely covered by these HCVs. That implies in the protection of IFLs not around a 'core' area, as stated in Motion 65, but rather in the form of corridors connected whenever this is possible[13].

b) Define the maximum logging limit within IFLs to a maximum rate equivalent to 75-80% of the actual intensity recommended by the legislation, as stated in 'Appendix G'. Also, as recommended in this Appendix, establish more strict criteria for tree selection, harvestable DBH (> 55 cm minimum), and a maximum DBH for harvesting. Some research done in this last subject recently has shown evidences that such threshold for a maximum DBH should not exceed 200 cm (Lentini et al. 2017). As discussed earlier, very large trees in tropical forests such as the Amazon are important in terms of carbon sinking and storage, as well as to maintain the regularity of forest canopy (maintaining 'canopy bridges') and in the creation of different strata for fauna specialized species to thrive.

c) Special felling techniques should be used in productive IFLs in the attempt of minimizing the size of the logging gaps generated. One important practice during this operation is to avoid overlapping of different trees in the same gap. Limiting the number of trees and imposing a maximum cutting diameter as described in the last item will certainly help in this issue as well. The measures of limiting gap sizes and logging intensities are consistent with the recommendations for harvesting in IFLs coming from Breukink and Terrana (2017).

d) Adopt distinct specifications with regards to the construction of roads in productive IFLs. It is believed to be of maximum importance that roads built in IFLs follows the recommendations of the draft of the new standard as a 'forest road'[14], very similar to most unpaved secondary roads built in certified enterprises in the Brazilian Amazon. There is enough evidence by now that ignoring this recommendation will certainly provoke an IFL decrease in area or its fragmentation.

[13] The new draft of the Brazilian standard actually suggests protecting IFLs in a conservation area network, connecting corridors of riparian zones, absolute reserves and other protection zones.

[14] As defined in the draft of the new Brazilian standard, forest road is a 'transport route at an intermediate level between the "road" and the "unpaved trail", built with special environmental care that allows access to traffic throughout the year for the transport of forest products and associated services. Forest roads far exceed the specifications of regular roads in environmental aspects, highlighting issues such as a project much more adapted to the local topography, in order to allow a significant less movement of soil and materials from one place to another during its construction. According to Keller and Sherar (USFS, 2003), low-impact rural roads are designed to be friendly to the environment, protecting water quality and waterways, protecting natural ecosystems, controlling erosion and runoff road and incentive solutions to connect its two sides and enable native species to cross wherever possible. If it can be demonstrated that the forest road has limited impact on the fragmentation of the Intact Forest Landscape, the standard buffer zone of 1km can be reduced'.

e) Special concerns should be directed, after logging, when the access of the forest roads should be closed until the next cutting cycle. In practice, this recommendation is difficult to be implemented due to the need of regular visits to harvested areas – due to enforcement operations, independent audits or even monitoring and access of surrounding communities to these areas for NTFP collection, for example.

f) Total opening in the IFL productive area (forest roads, log yards and skid trails) should not exceed the threshold of 6-8%, which is considered as an acceptable controlled logging by a few regulations in Brazil (especially in concessions).

g) So, in terms of IFL conservation, the challenge is to design infrastructures in a way that the area of IFLs destined to be harvested does not contain features that will provoke IFL fragmentation or reduction in size, as it is the case of main roads, camps and concentration yards. This could be a great challenge for FMUs composed by over 50-60% of IFLs, in a way to impose a relatively large burden in terms of planning and logistics during the harvesting season.

h) Increase the monitoring efforts within productive IFLs, as discussed in Table 7.

i) Consider the possibility of conducting post-exploratory silvicultural treatments, such as enrichment planting. That measure would be particularly important for species of high economic interest in the certified areas but with low rates of volumetric recovery after logging, such as ipê (*Handroanthus sp.*) (Lentini et al. 2017).

Above the sphere of the individual FMUs, it is clear that FSC might have a role as a convener of discussions on socioenvironmental aspects at landscape level. That would actually be the proper scale if the organization and related membership wants to make a difference in the further trajectory of IFLs in the Amazon. It is worthwhile to mention one of the recommendations given in a technical article written right before the General Assembly in 2017 (hence, before the inception of the Motion 34) by experts, about the creation, through the FSC-Brazil governance spheres, of a **technical-scientific committee** in charge of developing a national recommendation for protection and local engagement measures aiming at IFLs conservation, following the example of what has historically been done in forest plantation certification (Lentini et al. 2017). This would enable wider participation, the engagement of the main relevant actors, and the creation of clearer rules for local application by forest certification auditors and managers.

6- FINAL REMARKS AND RECOMMENDATIONS

This report, commissioned by FSC Brazil, had as the main objective to compile the main assessments made from the context of Intact Forest Landscapes (IFLs) protection status in relation to the certified FMUs in the Brazilian Amazon as a regional response to Motion 34/2017. As such, it evaluates expected short- and long-term impacts from the implementation of Motion 65/2014, focused on protecting 80% of the IFLs located within certified FMUs (and alternative scenarios of 30% and 50% protection) considering social, environmental and economic dimensions.

Although IFLs are crucial for biodiversity conservation, especially in the remaining tropical forests in the globe, the authors' advocate, based on the major findings of this report, that protecting a large proportion of these areas within FSC certified enterprises in the Brazilian Amazon ('protecting' here meaning t set aside these areas from the main productive objectives of the FMU) is ineffective and counterproductive, at least due to three main reasons, listed below.

(a) IFLs still cover a significant proportion of the Brazilian Amazon, totaling 226 million ha (projected area in 2019), equivalent to 44% of the territorial extent of the region. However, to date, roughly 0.6% of the IFLs are within FSC certified FMUs. On the other hand, 65% of the IFLs in the Brazilian Amazon are located in formally protected areas. Hence, the more effective way of protecting IFLs in the Amazon is through improved protection and management effectiveness of Indigenous Territories, parks, natural reserves and other restrictive use protected lands (correspondent to IUCN categories I and III).

(b) The imposition of restrictive measures for the forest management being conducted by certified FMUs in the Amazon, as stated in Motion 65 (80% of IFLs protected from harvesting), would likely make FSC certification unfeasible in the region. All representatives of certified FMUs interviewed during this assessment consider leaving FSC system in the case of an 80% IFL protection policy. That would imply in around 1.5 million hectares of FSC certificates lost. It would also imply for the forest sector in the Amazon a decrease in 60% of the area under proven responsible forestry[15]. The implications of having this relatively large decrease in the production of timber responsibly generated could imply in opening new opportunities for illegal logging competing for the same markets. For example, it is expected that increasing protection of IFLs within certified FMUs (~ 418k ha by 2019), with subsequent loss of certificates, could incentivize illegal logging to thrive by impoverishing other surrounding IFLs. Is estimated that there are today 75 million ha of IFLs located in areas accessible for logging in the Amazon.

(c) Since making FSC certification to be unbearable for the current forest sector will also reflect in the prospects of new forest management enterprises to be supported, although well intentioned, this measure leads FSC to the opposite side from the discussions being carried out in this very moment with regards to its new global strategy. The principle of 'hectares with meaning' in the new global strategy was intended to be prioritizing tropical forestry and community forest management, which will be highly compromised by Motion 65 or largely restrictive policies with regards to the management of IFLs within certified FMUs.

After extensive consultations to experts and stakeholders involved in the FSC system, and based on the authors' experience, is believed that current practices within IFLs should be improved. However, by considering the interest of better protecting IFLs within certified FMUs and maintain the balance between social, environmental and economic dimensions, hardly will be possible to achieve a 'win-win' scenario. Some remarks with regards to what was assessed with respect to this subject are summarized as follows.

a) The assessments provided in this study showed that prioritizing environmental aspects with regards to the protection of IFLs (scenarios of 80% protection and 50%) would provoke great

[15] It is considered as 'proven responsible forest management in the Amazon' the enterprises with forest areas large enough to maintain long-term cutting cycles and some level of third-party verification. In this moment, there are 2.5 million hectares in the Amazon that could be classified in this category, formed by certified enterprises and concessions.

negative short- and long-term social and economic impacts. In the economic lenses, unless large subsidies or price rises for certified timber coming from FMUs preserving large extents of IFLs, such scenarios would make certification unfeasible for most enterprises. Drops in the volumes produced would open new opportunities for rising markets for illegal timber in the same geographies, in a way to incentivize degradation of IFLs in public lands. Under these scenarios, all the certified FMU representatives stated that the enterprises would leave FSC certification towards no certification or a PEFC (Brazilian Cerflor) certification.

b) In a social perspective, the assessments provided in this study showed that prioritizing environmental aspects with regards to the protection of IFLs (scenarios of 80% protection and 50%) would also induce harmful social impacts. Although the number of jobs generated would likely to be marginally affected in the short run (< 5%), in the short to the long run leaving certification would provoke local unemployment in the local economies dependent on the certified enterprises and a likely loss in the quality of the jobs provided. Beyond, all activities and services provided by local suppliers would likely to be ignored without certification. Loss of rights by affected communities would follow, as well as decreasing FMUs investments in the communities, and a lower level of dialogue mobilization with these populations. 'Supra' legal social requirements, such as the mapping of social interest attributes, the impacts monitoring, and the adoption of mitigation actions, not common on business-as-usual enterprises, would not be guaranteed in private lands currently certified.

c) A better balance between the environmental, economic and social agenda could be achieved by managing most of the IFLs located within certified enterprises, with a few extra requirements with regards to the forest management techniques used in these areas. Bottom line, the current Brazilian NFSS draft for the management of native forests represent, in the authors' view, a relatively good way to do so. It is important to remember that there is extensive literature demonstrating that forest management practices, although altering the composition of forests over time, are able to maintain most of the biodiversity and ecological services provided by these forests[16]. In this way, conserving IFLs in the certified enterprises by a conjunction of practices which includes improved management of HCVs, more restrictive measures during harvesting operations (selection of trees, larger harvesting diameters, improved location of infrastructure), a few special measures after harvesting (post-harvesting silvicultural treatments, improved monitoring and closing of harvesting roads), and the partial protection of IFLs extents connected to the FMU's conservation area network are sound measures in this direction. All these measures, in one way or another, are included in the Brazilian NFSS draft for the management of native forests .

d) There is no guarantee that, even under improved management practices, further IFL mapping conducted by GFW will not consider that such IFLs are not fragmented and/or reduced in size due to these harvesting techniques. The assessments conducted over IFL maps for the Brazilian Amazon in 2013 and 2016 revealed that, up to this point, the portions of harvested forests that were demoted from the status of IFLs had as main reasons for this change the location of main logging roads and infrastructure, and not due to harvesting practices conducted in a more rigorous and careful way, which remained as IFL in this period. Experts have warned, however, that further improvements in the IFL mapping algorithm, the expansion of the temporal windows in which satellite imagery is accessed, or simply relatively small changes in the criteria adopted might result in reduction in the IFL area provoked even by fine-tuning harvesting in the future.

e) There is no guarantee that, even in a scenario of a more benign ruling in relation to the protection of IFLs with regards to economic aspects, as it is the case of the draft new standard, current certified FMUs will continue to be interested in certification. As a matter of fact, in this assessment, 50% of the certified FMU representatives interviewed declared that the enterprise will consider leaving the FSC system with the new standard in place.

[16] For example, Naves et al. 2020, Breukink and Terrana 2017, Laufer 2015, Bicknell, 2015, Ramos 2006, Gonçalves & Santos 2008, Braz et al. 2014, Carvalho 2002, Miller et al. 2011, West 2014.

During the study, it was estimated that 2/3 of the loss of IFLs in the Brazilian Amazon in the period of 2000-2016 (10.7 million hectares) occurred in areas accessible for logging given the current timber prices, infrastructure and costs[17]. That would mean that, if forestry has an important role to play in the long-term conservation of the Brazilian Amazon, it is urgent to offer tools such as forest certification to a large array of practitioners, arguably future forest concessions and community forest management operators in public lands. Today, in the Amazon, there are around 50 million hectares of national forests, state forests, sustainable development reserves and extractive reserves, with an average coverage of IFLs of 78%. This area would be enough to produce at least 20 million m^3 per year under sound forest management, or twice the demand of timber coming from the Amazon in 2018. Therefore, imposing a restrictive policy directed towards zoning a large portion of these potential FMUs as inaccessible to harvesting will discourage these enterprises to search for FSC certification. The opportunities to lead these enterprises to be certified, on the other hand, would include a series of social, economic and environmental extra benefits considering the current law requirements ('supra' legal benefits). In summary, there is an enormous potential for the expansion of FSC certification in these new potential responsible forest enterprises, if the new standard and the FSC system overall evolves in a way to provide the proper conditions for these enterprises to be certifiable, competitive, and to thrive in a systematic manner.

[17] The map of economic feasibility for logging was created by IMAZON in 2003 (unpublished), and used by one of the authors of this assessment (M. Lentini) in a M.Sc. thesis aiming to develop optimization models for land allocation for concessions in the Brazilian Amazon, in 2007. Full reference is provided in Section 7 of this report.

7- CONSULTED BIBLIOGRAPHY

Azevedo-Ramos, C.; Moutinho, P. 2018. No man's land in the Brazilian Amazon: Could undesignated public forests slow Amazon deforestation? Land Use Policy 73 (2018) 125–127. https://doi.org/10.1016/j.landusepol.2018.01.005

Bicknell, J. E. et al. (2015) Reconciling timber extraction with biodiversity conservation in tropical forest using reduced impact logging. Applied Ecology, 52.

Braz, E.M.; Mattos, P.P.; Oliveira, M.; Basso, R. Strategies for Achieving Sustainable Logging Rate in the Brazilian Amazon Forest Open Journal of Forestry. 2014. Vol.4, No.2, 100-105. http://dx.doi.org/10.4236/ojf.2014.42015.

Breukink, G.; Terrana, A. 2017. The role of responsible forest management in intact forest landscapes. WWF International. WWF brief international 2017.

Cardoso, D.; Souza Jr., C. 2020. Sistema de Monitoramento da Exploração Madeireira (Simex): Estado do Pará 2017-2018. Belém. IMAZON.

Carvalho, J.O. Changes in the floristic composition of a terra firme rain forest in Brazilian Amazonia over an eight-year period in response to logging. Acta Amazonia. Vol 32(2) 2002: p. 277-291.

FSC. Public forest management reports. Available at: www.info.fsc.org. Access: September 1st, 2020

Gonçalves, F.G.; Santos, J.R. Composição florística e estrutura de uma unidade de manejo florestal sustentável na Floresta Nacional do Tapajós, Pará. Acta Amazônica. Vol. 38(2) 2008: p. 229-244.

Instituto do Homem e Meio Ambiente Amazônia (IMAZON). Sistema Alerta de Desmatamento - SAD. Available at :< https://imazongeo.org.br/#/>. Acesso em 10 ago.2010.

Instituto Nacional de Pesquisas Espaciais. Coordenação Geral de Observação da Terra. Programa de Monitoramento da Amazônia e Demais Biomas. Desmatamento – Amazônia Legal – Available at: http://terrabrasilis.dpi.inpe.br/downloads/. Access: June 10, 2019.

Instituto Nacional de Pesquisas Espaciais. Coordenação Geral de Observação da Terra. Programa de Monitoramento da Amazônia e Demais Biomas. Avisos – Amazônia Legal - DETER – Available at: http://terrabrasilis.dpi.inpe.br/downloads/. Access: August 12, 2020.

Laufer, J.; Michalski F.; Peres, C. A. (2015) Effects of reduced-impact logging on medium and large bodied forest vertebrates in eastern Amazonia. Biota Neotropíca, 15.

Lentini, M. 2007. Land use allocation under multiple objectives in the Brazilian Amazon: creating a tool to guide zoning of public production forests. M.Sc. thesis. University of Florida.

Lentini, M.; Sobral, L.; Planello, M.; Vieira, R.; Cerignoni, F.; Nunes, F.; Guidoti, V. 2019. O que mudou no perfil da atividade madeireira na Amazônia nas últimas duas décadas (1998-2018)? Boletim Timberflow #1. Piracicaba. Imaflora.

Lentini, M.; Vidal, E.; Sobral, L.; Drigo, I. 2017. The role of FSC certified forest management in the conservation of Intact Forest Landscapes (IFLs) in the Brazilian Amazon. WWF Brazil, IMAFLORA and Lastrop.

Miller, S.D.; Goulden, M.L.; Hutyra, L.R.; Keller, M.; Saleska, S.R.; Wofsy, S.C.; Figueira, A.M.S.; Rocha, H.R.; Camargo, P.B. Reduced impact logging minimally alters tropical rainforest carbon and energy exchange. PNAS, November 29, 2011. Vol. 108, no. 48, P. 19431–19435. www.pnas.org/cgi/doi/10.1073/pnas.1105068108.

Naves, R.; Grotan, V.; Prado, P.I.; Vidal, E.; Batista, J.L.F. (2020). Tropical forest management altered abundances of individual tree species but not diversity. Forest Ecology and Management, 475. https://doi.org/10.1016/j.foreco.2020.118399.

Piponiot, C. et al. 2019. Can timber provision from Amazonian production forests be sustainable? Environ. Res. Lett. 14 (2019) 064014. https://doi.org/10.1088/1748-9326/ab195e

Potapov, P., A. Yaroshenko, S. Turubanova, M. Dubinin, L. Laestadius, C. Thies, D. Aksenov, A. Egorov, Y. Yesipova, I. Glushkov, M. Karpachevskiy, A. Kostikova, A. Manisha, E. Tsybikova, and I. Zhuravleva. 2008. Mapping the world's intact forest landscapes by remote sensing. Ecology and Society 13(2): 51. [online] URL: http://www.ecologyandsociety.org/vol13/iss2/art51/

Ramos, C. A.; Carvalho Jr., O. de; Amaral, B. D. (2006) Short-term effects of reduced impact logging on eastern Amazon Fauna. Forest Ecology and Management, 232.

Souza Jr., C.; Fonseca, A.; Nunes, S.; Salomão, R.; Ribeiro, J.; Martins, H. 2019. Desmatamento em áreas protegidas. O Estado das áreas protegidas. Belém. IMAZON.

West T. A. P; Vidal, E.; Putz, F. E. (2014) Forest Biomass recovery after conventional and reduced impact logging in Amazonian Brazil. Forest Ecology and management, 314.

Zhuravleva, I.; Turubanova, S.; Potapov, P.; Hansen, M.; Tyukavina, A.; Minnemeyer, S.; Laporte, N.; Goetz, S.; Verbelen, F.; Thies, C. 2013. Satellite-based primary forest degradation assessment in the Democratic Republic of the Congo, 2000–2010. Environ. Res. Lett. 8 (2013) 024034 (13pp). doi:10.1088/1748-9326/8/2/024034

8- APPENDICES

8.1- APPENDIX G OF THE NEW PROPOSED FSC STANDARD FOR THE MANAGEMENT OF NATURAL FORESTS IN THE AMAZON

Specific precautionary measures for forest management for timber production within Intact Forest Landscapes*[18]

Application Note: This annex is normative and mandatory for all organizations that undertake logging activities in areas that are defined as being of high conservation value for their landscape value, known as intact forest landscapes. This normative annex has been compiled from expert consultations and addresses four aspects of forest management and reduced impact logging:

1) Planning and implementation of infrastructure for forest harvesting.

2) Tree selection and protection * of species to be harvested.

3) Low intensity logging.

1- Measures related to the planning and implementation of infrastructure * for logging

a) The construction techniques adopted maintain connectivity * between both sides of the forest (i.e., follow the definition of 'forest roads', narrower than the normal standard to maintain a minimum canopy opening).

b) The main road has a maximum width of 10 meters and a maximum width of 12 meters.

c) Loss of forest cover due to the opening of roads is limited to up to 5% of the Annual Production Unit.

d) 'Canopy bridges' are established along secondary roads connecting the canopies.

e) Erosion control measures are sufficient to minimize and / or prevent impacts on watercourses* (i.e., drainage boxes and structures, manholes and bridges, and other erosion control measures).

f) Roads and infrastructures are designed to better adapt to topography and local edaphoclimatic conditions (e.g. winding, inclination, movement of materials during the construction process).

g) The impact of the harvesting is less than 15% of the Annual Production Unit, covering roads, patios, trails and campsites.

h) Infrastructure* is preferably used during the harvest and its use is minimized during the rainy season. If the infrastructure is used in the rainy season, it is recommended to adopt environmental recovery measures after their use, including revegetation actions, native species enrichment plantations, soil scarification, decompression and / or removal of crop residues.

i) The Organization* considers the closure of infrastructure* after exploration, with special recommendation for the removal of culverts and other 'works of art' that may clog over time and cause damage to water bodies. In case this withdrawal is not possible, as in the case of roads that are important for community access, the Organization* shows special caution in the regular monitoring and maintenance of these structures to avoid possible damage to water bodies.

j) Speed limits are set to prevent wildlife being run over.

k) Unpaved trails* have temporary use and are considered to be blocked for motor vehicles within one to two years of construction. Exceptions to this recommendation are considered for small vehicles in cases where access to areas by communities is important, for the collection of non-timber forest products of importance to the livelihood of such communities, or for surveillance and monitoring purposes in the management area.

(l) Where paving of operating infrastructures is required, this shall be limited to specific sections of the infrastructure so as to keep the soil as close as possible to the natural conditions. The Organization* also

[18] Translation provided by the author of this report.

considers paving without the use of materials not existing in the management area, i.e., respecting the principle of minimizing the introduction of exotic materials into intact forest landscapes.

m) Trails shall be designed to avoid crossing watercourses. When watercourses are crossed and damage such as changes in river speed, landslide or siltation occurs, they must be restored after harvesting.

2- Measures related to tree selection and protection * of species to be exploited

(a) The maximum harvest intensity applied to areas managed in intact forest landscapes remains below 3/4 of the annual yield defined by the legislation (i.e. 22.5 cubic meters per hectare over a 35-year cutting cycle).

b) From the second management rotation cycle, the growth rate of each species is considered to define the cutting intensity for each species and the allowed annual cutting volume, respecting the maximum exploitation intensity of 3/4 of the annual productivity estimated, obtained from the best available information*. If this information is not available, consider 22.5 cubic meters per hectare.

(c) The Organization* shall adopt a maximum diameter at breast height (DBH) of harvested trees of less than 200 cm.

(d) The Organization* shall adopt a minimum diameter at breast height (DBH) of harvested trees of 55 cm or more. Exceptions to this minimum are acceptable only in the case of species and specific products due to exceptional market conditions, with technical and scientific basis.

e) The Organization* considers increasing the range of species exploited in Intact Forest Landscapes *, in order to mitigate long-term impacts on species of high market value exploited.

(f) At least 15% of individuals and not less than 5 individuals of exploitable commercial species above the minimum cutting diameter per 100 hectares shall be preserved in management units. The decision to apply such actions is proportional to scale, intensity and risk*.

(g) The removal of trees in use for food, resting places or reproduction by rare and endangered species shall be avoided.

3- Measures related to the conduct of low intensity logging *

a) In conducting precautionary management*, the Organization* considers harvesting adjacent production units in non-consecutive years, allowing areas for wildlife refuge throughout the forest management cycle.

(b) In designing the different annual production units, the Organization* also considers the formation of preserved ecological corridors within intact forest landscapes* with the same objectives as above.

c) The Organization* considers exploiting a maximum of 5 trees per hectare.

d) For species with an unusual diameter distribution pattern, i.e. with a low number of specimens in the smallest diameter classes (i.e. patterns that differ from the “inverted J”), the Organization* evaluates the possibility of taking enrichment measures long-term maintenance of such species. The decision to apply such actions is proportional to scale, intensity and risk*.

e) Post-exploratory silvicultural treatments are conducted to support regeneration if the frequency of tree species of ecological or cultural importance is decreased. The decision to apply such actions is proportional to scale, intensity and risk*.

f) Post-exploratory monitoring is performed to support the decision whether or not to implement silvicultural strategies in the area. A greater monitoring effort is also considered in areas explored within intact forest landscapes, with measures, for example, in the case of the adoption of permanent plots as a continuous inventory method, measuring individuals above 10 cm DBH.

8.2- PERCEPTION QUESTIONAIRE DEVELOPED AND APPLIED IN THIS ASSESSMENT (PORTUGUESE VERSION)

QUESTIONÁRIO DE COLETA DE DADOS

Estudo de impactos sociais, econômicos e ambientais relativos à proteção de IFLs na Amazônia Brasileira

Introdução

Estamos conduzindo este estudo para entender os impactos positivos e negativos, atuais e potenciais, relativos à proteção de Paisagens Florestais Intactas (IFLs em inglês) em empreendimentos certificados FSC.

O objetivo é mapear percepções e fatos junto aos atores chaves do sistema e elaborar recomendações para nortear os caminhos relativos ao tema ao longo deste ano.

Algumas definições importantes:

***Paisagens Florestais Intactas** são grandes blocos de remanescentes florestais e outros sistemas ecológicos naturais significativamente não perturbados por ações antropogênicas - como a construção de rodovias e o desenvolvimento de outras atividades econômicas. De acordo com a definição global, os IFLs devem ter uma área mínima de 50k hectares e uma largura mínima de 10km².*

***A moção #65 de da Assembleia Geral de 2014 - Sevilla** internalizou preocupações sobre a conservação das IFLs, levando o FSC a publicar um **Advice Note #65** permitindo a implementação de operações FSC nas áreas de IFL somente nos casos em que nenhuma IFL seja reduzida para menos de 500 Km² e que impactos da exploração de madeira não afetem mais de 20% da área total do IFL, exigindo assim que 80% dos IFLs sejam protegidos contra a exploração madeireira.*

***A moção #34 de da assembleia geral de 2017 – Vancouver**, no entanto, solicitou a realização de avaliações regionais dos impactos positivos e negativos, de curto e longo prazo, da implementação da Moção 65 / 2014.*

Você foi considerado/a uma pessoa chave para colaborar com essa avaliação e, portanto, gostaríamos de fazer algumas perguntas. Antes de começar, vale lembrar que todas as informações obtidas serão confidenciais e terão o único objetivo de apoiar a avaliação regional para o caso brasileiro.

QUESTIONÁRIO DE COLETA DE DADOS

Estudo de impactos sociais, econômicos e ambientais relativos à proteção de IFLs na Amazônia Brasileira

Nome do entrevistado: _____
Categoria: ☐ Certificado ☐ Em processo ☐ Ex-certificado ☐ Especialista
Empreendimento: _____ ☐ N/A
Entrevistador: _____

Legenda de categorias aplicáveis para cada pergunta:
C = Certificado | **P =** Em processo | **EX =** Ex-certificado | **ES =** Especialista

1) **C | P | EX** - ***Quais os benefícios que uma melhor proteção de IFLs pode trazer ao seu empreendimento, considerando aspectos ambientais, ecológicos, econômicos e sociais?***

2) **C | P | EX** - ***Por outro lado, quais os riscos que a implementação da Moção 65 poderia trazer ao seu empreendimento, considerando aspectos ambientais, ecológicos, econômicos e sociais?***

3) **TODOS** - ***Na sua percepção, quais os benefícios e riscos de curto e longo prazo que a proteção de IFLs pode trazer aos empreendimentos certificados e ao sistema de certificação FSC, considerando aspectos ambientais, ecológicos, econômicos e sociais?***

	Benefícios		Riscos	
	Curto Prazo	Longo prazo	Curto Prazo	Longo prazo
Ambientais / ecológicos:				
Econômicos:				
Sociais:				

4) **C | P | EX** – ***O EMF identificou e delimitou as IFLs existentes na UMF?***

☐ Sim ☐ Não ☐ Não sei ☐ N/A

Se sim, qual tem sido a posição ou reação institucional após a identificação de IFLs na UMF? (Marcar todas as alternativas que se aplicam)

☐ Orgulho porque isso demonstra que o manejo sendo executado tem garantido a manutenção de IFL
☐ Temos utilizado isso como argumento para amenizar conflitos sociais
☐ Temos utilizado isso em para fortalecer a imagem/reputação do EMF na área ambiental
☐ Receio de que as limitações de uso de IFLs possam inviabilizar o manejo
☐ Receio de aumentar os custos de manutenção e monitoramento na área
☐ Receio de acirrar conflitos sociais ou com partes interessadas
☐ Outro (especifique): _____

Se não, como você imagina que seria a posição ou reação caso tivessem sido identificadas IFLs na UMF? (Marcar todas as alternativas que se aplicam)

☐ Orgulho porque isso demonstra que o manejo sendo executado tem garantido a manutenção de IFLs
☐ Temos utilizado isso como argumento para amenizar conflitos sociais

☐ Temos utilizado isso em para fortalecer a imagem/reputação do EMF na área ambiental
☐ Receio de que as limitações de uso de IFLS possam inviabilizar o manejo
☐ Receio de aumentar os custos de manutenção e monitoramento na área
☐ Receio de acirrar conflitos sociais ou com partes interessadas
☐ Outro (especifique): _____

ES – Na sua percepção, *como tem sido a posição ou reação dos EMFs certificados em relação à identificação de IFLs?* (Marcar todas as alternativas que se aplicam)
☐ Orgulho porque isso demonstra que o manejo sendo executado tem garantido a manutenção de IFLs
☐ Temos utilizado isso como argumento para amenizar conflitos sociais
☐ Temos utilizado isso em para fortalecer a imagem/reputação do EMF na área ambiental
☐ Receio de que as limitações de uso de IFLS possam inviabilizar o manejo
☐ Receio de aumentar os custos de manutenção e monitoramento na área
☐ Receio de acirrar conflitos sociais ou com partes interessadas
☐ Outro (especifique): _____

SEÇÃO 1: POTENCIAIS IMPACTOS AMBIENTAIS

5) **C | P | EX (Com IFL) - *Pode nos contar um pouco do histórico e da trajetória de uso dos IFLs que estão inseridos em sua Unidade de Manejo? No passado, como foi realizado o manejo florestal nestas áreas?***

6) **C | P | EX (Com IFL) - *Em algum momento antes de indicadas como IFLs tais áreas foram identificadas como HCVs? Se sim, quais foram as medidas tomadas para sua proteção e manutenção de seus valores ambientais?***

7) **C | P | EX (Com IFL) - *Até o momento as IFLs inseridas em sua Unidade de Manejo tem recebido alguma precaução adicional em termos das práticas de manejo florestal ou outras práticas de conservação? Se sim, poderia descrever especificamente quais?***

8) **TODOS - *Na sua visão, quais são as medidas mais importantes para manter IFLs no longo prazo, considerando aspectos ambientais, ecológicos, econômicos e sociais? Qual o papel dos empreendimentos de manejo florestal certificados na implementação destas medidas?***

9) **TODOS - *De acordo com a sua experiência, quais as precauções adicionais em termos das práticas de manejo que poderiam ser adotadas para a conservação de IFLs de modo à atender às preocupações de manutenção de IFLS conforme tem sido buscado pelo sistema FSC?***

10) **TODOS - *Quais os atributos que você acredita que deveriam ser monitorados para avaliar os impactos ambientais em IFLs? Com qual frequência e como estes atributos poderiam ser monitorados?***

Atributos ambientais IFLs	Forma de monitoramento	Frequência

SEÇÃO 2: POTENCIAIS IMPACTOS ECONÔMICOS

11) **C | P | EX (Com IFL)** - ***O EMF tem uma estimativa da área total coberta por IFLs? Qual a sua proporção em relação à área manejada?***

12) **C | P | EX (Com IFL)** - ***O EMF tem uma estimativa do quanto da receita total e da área de colheita anual (desde 2015) vem de IFL? Há simulações destas estimativas?***

13) **C | P | EX (Com IFL)** - ***O EMF tem estimativas do quanto sua rentabilidade seria afetada pelo aumento de áreas destinadas à proteção/conservação? Há simulações destas estimativas?***

14) **C | P | EX** - ***Caso a Moção 65 fosse implementada de maneira integral, o EMF tomaria qual decisão em relação ao seu certificado FSC?***

15) **TODOS** - ***Qual você acredita ser o limite aceitável de proteção de IFLs em área de manejo (em %)? Baseado em quais argumentos você defenderia isso?***

16) **TODOS** - ***Caso entenda que a implementação da Moção 65 esteja trazendo/possa trazer prejuízos econômicos aos EMFs certificados, que tipo de apoio ou subsídio deveria compensar tais perdas? Existem simulações numéricas destes valores?***

17) **TODOS** - ***Um melhor mercado/melhores preços praticados para produtos certificados poderiam compensar estas perdas? Existem simulações numéricas destes valores?***

18) **TODOS** - ***Que outras medidas poderiam ser tomadas pelos atores envolvidos no sistema FSC para compensar eventuais perdas relativas à adoção da Moção 65, se for este o caso?***

19) **C | P | EX (com IFL)** - ***O EMF tem tomado alguma salvaguarda com vista à implementação da Moção 65?*** (Marcar todas as alternativas que se aplicam)

- ☐ Temos buscado novas áreas fora de IFLs para manejar FSC.
- ☐ Temos reduzido os investimentos em exploração FSC. Especifique:
- ☐ Temos tomado medidas para minimizar o impacto ou intensidade das operações em IFLs. Especifique:
- ☐ Temos realizado operações mais intensivas em florestas fora dos IFLs.
- ☐ Temos pesquisado e/ou conversado com clientes sobre outros sistemas de certificação florestal. Especifique:
- ☐ Outro (especifique):
- ☐ Não adotamos nenhuma medida de salvaguarda.

20) **ES e C | P | EX (sem IFL)** - **Na sua avaliação, *quais as salvaguardas que os EMFs certificados com IFLs tendem a buscar diante da implementação da Moção 65?*** (Marcar todas as alternativas que se aplicam)

- ☐ Buscar novas áreas de manejo
- ☐ Reduzir investimentos em exploração FSC
- ☐ Tomar medidas para minimizar o impacto ou intensidade das operações
- ☐ Realizar operações mais intensivas em áreas fora dos IFLs
- ☐ Pesquisar e/ou conversar com clientes sobre outros sistemas de certificação florestal. Especifique:
- ☐ Outro (especifique):

☐ Não creio que estejam sendo tomadas medidas de salvaguarda.

SEÇÃO 3: POTENCIAIS IMPACTOS SOCIAIS

21) TODOS - Como os IFLs e a implementação da Moção 65 podem influenciar os diferentes grupos de partes interessadas?

	Benefícios	Prejuízos
Trabalhadores / sindicatos		
Povos tradicionais e indígenas		
Movimentos sociais		
Comunidades afetadas		
Comunidades manejadoras		
Governos locais		
ONGs locais		
Comércio local		
Outros atores. Especifique:		

22) TODOS - De que modo a implementação da Moção 65 poderá trazer impactos sociais nos territórios onde há EMFs certificados? (Marcar todas as alternativas que se aplicam)

☐ Poderá prejudicar serviços e projetos sociais desenvolvidos pelos EMFs certificados. Especifique: _____

☐ Poderá impactar na saúde, educação e/ou segurança dos municípios devido à menor arrecadação de impostos. Especifique: _____

☐ Poderá impactar a geração de empregos no setor florestal. Especifique: _____

☐ Poderá impactar no acesso dos povos tradicionais a benefícios advindos do manejo florestal certificado. Especifique: _____

☐ Poderá aumentar atividades ilegais na paisagem. Especifique: _____

☐ Poderá influir nos direitos de populações tradicionais. Especifique: _____

☐ Outro (especifique): _____

☐ Não acredito que haverá impactos sociais nos territórios. Explique: _____

SEÇÃO 4: NOVO PADRÃO NACIONAL DE MANEJO FLORESTAL FSC

23) Considerando que os indicadores propostos no Comitê de Desenvolvimento de Padrões no Brasil são em grande parte voltados a propor menor intensidade de manejo em IFLs, como você considera que eles contribuem para minimizar eventuais impactos negativos da implementação da Moção 65?

Impactos ambientais	☐ De modo suficiente ☐ Moderadamente ☐ Não minimiza impactos negativos	**Explique**:
Impactos econômicos	☐ De modo suficiente ☐ Moderadamente ☐ Não minimiza impactos negativos	**Explique**:
Impactos sociais	☐ De modo suficiente ☐ Moderadamente ☐ Não minimiza impactos negativos	**Explique**:

24) ***A implementação do novo padrão nacional, do modo como está caminhando atualmente, mudaria sua decisão em relação a certificação FSC? Se sim, como e por quê?***

Você ou sua EMF disponibilizariam dados adicionais de apoio para a análise da pesquisa? Dados relevantes seriam, por exemplo:

a) Volumetria média de exploração por hectare (nas áreas de IFLs e fora das mesmas);
b) Espécies comerciais existentes na áreas de IFLs;
c) Preços médios de madeira em tora por espécie;
d) Custos atuais de exploração florestal (por árvore ou hectare);
e) Rentabilidade média por hectare explorado;
f) Número de empregos gerados (por hectare preferencialmente);
g) Serviços e projetos sociais oferecidos pelo EMF;
h) Como se dá o acesso de populações locais às áreas de manejo florestal do EMF (nas áreas de IFLs e fora das mesmas);
i) Impostos gerados a partir da exploração florestal (por hectare preferencialmente).