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An assessment in the Congo basin

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Photo by Edouard Essiane Mendoula
Workers in a certified FMU going home after work.

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Executive summary

Since the first half of the 1990s, forest certification has been promoted as a means to tackle global deforestation and forest degradation. Among the existing initiatives, the voluntary, market-based, third-party certification system offered by the Forest Stewardship Council (FSC) is the most prominent in terms of global share for the certification of responsible forest management in the tropics. FSC certification has been promoted by environmental and social groups, and more recently also by businesses and governments. The FSC scheme assesses companies and forest management units (FMUs) against a set of principles, criteria and indicators by checking that management is environmentally appropriate, socially beneficial and economically viable.

Although the FSC standard has a strong social component that seeks to improve relationships between logging companies and local populations and contribute significantly to local development, social impacts are under-researched, and the existing literature shows conflicting results. In particular, in the Congo basin, the focus of this occasional paper, there is a limited number of assessments of the social impacts of forest certification and its expected impact on the local population and their customary rights. Such rights are also guaranteed, with some restrictions, by existing statutory provisions in all Congo basin countries. More robust evaluations have not yet been possible because of the very recent history of FSC certification in the region: The first currently valid certificate in the region was only granted at the end of 2005.

As of 2013, however, the Congo basin had the largest area of certified natural tropical forest in the world, with about 5.3 million ha. This is still a relatively small proportion (ca. 7–13%) of all FMUs in the region. We believe it is time, before certification expands further, to assess whether the social impacts in certified FMUs show any sign of improvement compared to noncertified ones. This comparison is also timely because (1) the legal frameworks of the study countries have many similarities to the social requirements

of FSC certification, thus allowing an indirect assessment of the legal frameworks' social impacts, and (2) some tropical producer countries recently proposed recognizing FSC-certified timber as compliant with the requirements of the EU's Forest Law Enforcement, Governance and Trade (FLEGT) Action Plan. Once the Action Plan is fully operational in those countries, the FSC-certified timber produced there could be exported as legal timber.

This occasional paper assesses whether the implementation of FSC certification in FMUs in three Congo basin countries has had positive additional impacts on (1) the working and living conditions of logging companies' employees and their families, (2) the effectiveness and legitimacy of the institutions set up to regulate relationships between logging companies and neighbouring communities, and (3) the local populations' rights to and customary uses of forests.

More specifically, this research tries to answer the following questions:

1. How do working conditions (including occupational health and safety) differ between certified and noncertified FMUs?
2. How do the living conditions of workers and their families differ between certified and noncertified FMUs?
3. How do institutions set up by companies in certified and noncertified FMUs differ and for what reasons? What specific functions are attributed to institutions, and with what results on legitimacy and effectiveness?
4. Are existing institutions legitimate, effective and equitable means for local residents to discuss, through locally designated or elected representatives, their expectations of the logging companies?
5. Are the institutions socially legitimate and able to regulate forest uses, so as to prevent or minimize conflicts that may occur among different users of the same forested space?

To answer these questions, a review was undertaken of the mechanisms adopted by logging

companies in nine certified and nine noncertified FMUs (three in each category in Cameroon, Gabon and the Republic of the Congo) to regulate working conditions in sawmills and forestry operations, and to sustain relationships with villages neighbouring their FMUs.

Both quantitative and qualitative results suggest that significant differences exist between the certified and noncertified FMUs that were the focus of this study. There also exist differences within groups, in some variables more than in others, often with large differences between the best and worst performers. Key findings include the following:

1. The presence of a certified FMU is consistently associated with better working and living conditions as measured by the 17 variables assessed. Major differences exist in the presence and effective implementation of clear written procedures that regulate working conditions in sawmills and during forestry operations and living conditions in the *bases vie*, where the company provides accommodations and services for workers and their families. Results indicate that the quality of life has improved in *bases vie* around certified FMUs since certification was granted. Essential services such as water supply and medical facilities are guaranteed; workers expressed more satisfaction about prices and products available at the local minimarkets than those in noncertified FMUs; and basic services such as housing, electricity, and waste management contribute to improved living conditions.
2. Active local institutions, in which discussions between the local population and the company on a number of issues can occur on a regular basis, are arguably the most distinctive feature of certified FMUs. All measured variables show higher positive values than in noncertified FMUs. Some of these institutions also exist, albeit with lower qualitative standards, in noncertified FMUs that are seeking certification. Their legitimacy, effectiveness and degree of employee satisfaction are testimony to one clear positive change that certification can bring about. As to the governance of such institutions, written procedures to manage them, transparent election of members, the inclusion of members external to the community, and the periodic renewal of members occur more often in certified than noncertified FMUs. Also, all companies with certified FMUs have mechanisms in place for compensation to the rural population when harvesting operations cause losses to them.
3. There is a consistent association between FSC certification and the existence of benefit-sharing mechanisms in addition to, and with a more equitable redistribution than, those mandated by existing legal frameworks. In a few cases, companies with noncertified FMUs also established such schemes, but those run by companies with certified FMUs are generally better organized and managed. Given the long-term negative performance of public benefit-sharing schemes, private schemes are very much welcomed by the local population because they often contribute directly to local economies. In certified FMUs, redistribution occurs regularly to all neighbouring villages (unlike in noncertified FMUs, where companies adopt a more localized approach). The certified FMU approach allows more open, dynamic and regular contact to occur between company staff and the local population.
4. The presence of an FMU, certified or not, is not associated with significant change in local agriculture, hunting and non-timber forest product (NTFP) collection. Some of these practices are, however, illegal. In particular, inside an FMU, practicing shifting cultivation (except in fields that already existed at the time the FMU was established) and hunting and NTFP collection with nontraditional means and for commercial purposes are banned by all three study countries. While the level of reported activities is similar in certified and noncertified FMUs, people living around certified FMUs see themselves as constrained by new regulations more than people living around noncertified FMUs. This is because companies with certified FMUs introduce procedures and rules to enforce the law and hire personnel to enforce them. In contrast, given the general weakness of state law enforcement, companies with noncertified FMUs are under much less pressure to enforce the law, especially on matters that are not directly related to timber harvesting. They can thus adopt a position of greater tolerance for local customs, even illegal ones. Paradoxically, on this issue, there is a greater chance of social peace being maintained in noncertified FMUs.

Overall, results indicate that it was only after companies decided to adopt certification that several practical social improvements occurred. We suggest that positive social outcomes materialized in certified FMUs, more than in noncertified ones, because companies were required by certification to set and respect a calendar of implementation vis-à-vis multiple criteria, which were then regularly checked in annual evaluations. Regular assessments that push companies to constantly improve on social standards are still lacking in the national legal frameworks and the forestry departments mandated to enforce them. The latter are vastly under-resourced (in both human and financial terms) and largely lack the training needed to verify the companies' social performances.

Positive social outcomes also materialized because certification pushes companies to maintain a permanent channel of communication with the local population, in order to avoid unexpected disruptions or social conflicts that might not only interfere with normal operations but also increase a company's reputational risk. The existence of such channels and the permanent dialogue fostered by active local institutions are arguably the most striking characteristics of certified FMUs. Of course, the existence of institutions in itself does not make all conflicts disappear, but the permanent dialogue established between logging companies, the local populations, and, often, external parties (e.g. state officials and local and international NGOs) marks a clear break with the way logging activities were conducted in the past.

Measured positive changes do not yet mean positive long-term impacts on the livelihoods of all people living in and around certified FMUs. Yet the social variables measured by this study seem to indicate that progress toward sustainable forest management has been driven more by certification than by current laws. Sometimes improvements meant correcting negative governance externalities, such as nonexistent or weak law enforcement. Sometimes they meant that companies with certified FMUs went the 'extra mile' (i.e. they adopted measures well beyond what is requested by

the law) that customers in very demanding markets would expect them to go. At still other times, improvements meant that companies with certified FMUs had to take on the role of an absent state to avoid situations that could harm their certified status — something that we argue may have positive social impacts but risks reinforcing an old role, that of a state within the state, that logging companies should be abandoning, not embracing.

Measured differences draw a clear comparison of the social performance of companies and FMUs with and without certification. This is the most relevant contribution of this study to current discussions of the impacts of certification on the world's forests and people living in and from those forests. The complex historical and political-economic reality in which certification has developed in the Congo basin might well make issues of attribution and causality difficult to clarify. Yet results help establish that a clear difference currently exists between certified and noncertified timber: The former is sourced in FMUs where not only legally mandated social standards are implemented, but also voluntary standards that are superior and more effective.

There should of course be no complacency from the FSC or logging companies with certified FMUs in comparing themselves with currently less well-managed or less well-resourced FMUs, as the entire logic of FSC certification is to assess the more responsible forest managers against ever-evolving standards, irrespective of the quality of national legislation. But one should also not forget that companies with certified FMUs in the study countries are competing less against a theoretical global logging company than against their neighbours, who produce the same species and sell on similar markets, albeit with much lower investments, especially in improving their social performance. In this very competitive and uneven playing field, and with the scarce price premiums that seem to have been obtained so far, the evidence presented indicates that certification in the Congo basin has been able to push companies toward remarkable social progress.

Résumé exécutif

Depuis la première moitié des années 1990, la certification forestière a été promue comme un moyen de lutter contre la déforestation et la dégradation des forêts. Parmi les initiatives existantes, celle offerte par le Forest Stewardship Council (FSC) est la plus importante en termes de surfaces couvertes pour la certification de la gestion responsable des forêts dans les tropiques. La certification FSC a été promue par les groupes environnementaux et sociaux, et, plus récemment, par les entreprises et les gouvernements. Le régime FSC évalue les entreprises et les unités forestières d'aménagement (UFA) selon des principes, critères et indicateurs en vérifiant que l'aménagement est écologiquement approprié, socialement bénéfique et économiquement viable.

Bien que la norme FSC ait une forte composante sociale qui vise à améliorer les relations entre les sociétés forestières et les populations locales et contribuer de manière significative au développement local, les impacts sociaux ont été peu documentés, et la littérature existante montre des résultats contradictoires. En particulier, dans le bassin du Congo - sur lequel se focalise ce document occasionnel - il y a un nombre limité d'évaluations de l'impact social de la certification forestière et de son impact attendu sur la population locale et leurs droits coutumiers. Ces droits sont garantis par les lois en vigueur dans tous les pays du bassin du Congo, qui imposent toutefois aussi certaines restrictions. Des évaluations approfondies n'ont pas encore été possibles en raison de l'histoire récente de la certification FSC dans la région : le premier certificat en cours de validité dans la région n'a été accordé qu'à la fin de 2005.

Cependant, en 2013, le bassin du Congo avait la plus grande surface de forêt tropicale naturelle certifiée dans le monde, avec environ 5,3 millions d'hectares. Cela représente encore une proportion relativement faible (environ 7-13%) de l'ensemble des UFA de la sous-région. Nous croyons qu'il est temps, avant que les surfaces certifiées augmentent davantage, d'évaluer si les impacts sociaux dans les UFA certifiées sont aujourd'hui meilleurs que

ceux constatés dans les UFA non certifiés. Cette comparaison est également opportune parce que (1) les cadres légaux des pays concernés par l'étude ont de nombreuses similitudes avec les exigences sociales de la certification FSC, permettant ainsi une évaluation indirecte des impacts sociaux des lois existantes, et (2) certains pays producteurs de bois tropicaux ont récemment proposé de reconnaître le bois certifié FSC comme conforme aux exigences du plan d'action Forest Law Enforcement, Governance and Trade (FLEGT) de l'UE. Une fois ce plan d'action opérationnel dans ces pays, le bois certifié FSC pourrait être exporté sous la forme de bois d'origine légale.

Ce document occasionnel évalue si la mise en œuvre de la certification FSC dans les UFA dans trois pays du bassin du Congo a eu des effets positifs supplémentaires sur (1) les conditions de travail et de vie des salariés des entreprises forestières et de leurs familles, (2) l'efficacité et la légitimité des institutions mises en place pour réguler les relations entre les sociétés forestières et les communautés avoisinantes, et (3) les droits des populations locales et leurs usages coutumiers des forêts. Plus précisément, cette recherche tente de répondre aux questions suivantes:

1. Comment les conditions de travail (y compris la santé et la sécurité au travail) diffèrent entre les UFA certifiées et non certifiées ?
2. Comment les conditions de vie des travailleurs et de leurs familles diffèrent entre UFA certifiées et non certifiées ?
3. Comment les institutions mises en place par les entreprises avec UFA certifiées et non certifiées diffèrent et pour quelles raisons ? Quelles sont les fonctions spécifiques attribuées aux institutions, et avec quels résultats sur leur légitimité et efficacité ?
4. Est-ce que les institutions existantes, à travers des représentants nommés ou élus, sont des moyens légitimes, efficaces et équitables pour permettre aux résidents locaux de discuter les attentes qu'ils ont par rapport aux entreprises forestières ?
5. Est-ce que les institutions sont socialement légitimes et capables de réguler les usages de

la forêt, afin de prévenir ou de minimiser les conflits qui peuvent survenir entre les différents utilisateurs d'un même espace boisé ?

Pour répondre à ces questions, un examen des mécanismes adoptés par les sociétés forestières a été entrepris dans neuf UFA certifiées et neuf UFA non certifiées (trois dans chaque catégorie au Cameroun, au Gabon et en République du Congo) pour réglementer les conditions de travail dans les scieries et les opérations forestières, et pour entretenir des relations avec les villages riverains des UFA.

Les résultats quantitatifs et qualitatifs suggèrent que des différences importantes existent entre les UFA certifiées et non certifiées. Il existe également des différences au sein des deux groupes pour certaines variables plus que pour d'autres, souvent avec de grandes différences entre les meilleurs et les pires résultats. Les principales conclusions sont les suivantes:

1. La présence d'une UFA certifiée est presque régulièrement associée à de meilleures conditions de travail et de vie selon les 17 variables évaluées. Les résultats indiquent que la qualité de vie s'est améliorée dans les bases vie autour des UFA certifiées depuis que la certification a été accordée. Des services essentiels tels que l'approvisionnement en eau et les installations médicales sont garantis ; les travailleurs ont exprimé plus de satisfaction sur les prix et les produits disponibles dans les éconòmats par rapport à ceux dans les UFA non certifiées. Des services de base tels que le logement, l'électricité et la gestion des déchets contribuent à des conditions de vie améliorées.
2. Les institutions locales actives, où des discussions entre la population locale et la société peuvent se tenir sur une base régulière, sont sans doute la caractéristique la plus distinctive des UFA certifiées : pour toutes les variables mesurées, les impacts sont meilleurs que dans les UFA non certifiées. Certaines de ces institutions existent également dans les UFA non certifiées qui vont vers la certification, mais avec des normes qualitatives encore inférieures. Leur légitimité, l'efficacité et le degré de satisfaction des employés sont le témoignage de l'un des changements positifs clair que la certification peut apporter.

Quant à la gouvernance de ces institutions, les procédures écrites pour les gérer, l'élection transparente entre les membres, l'inclusion de membres extérieurs à la communauté et le renouvellement périodique des membres sont constatés plus souvent dans les UFA certifiées que dans les non certifiées. En outre, toutes les entreprises avec UFA certifiées ont des mécanismes de compensation au profit de la population rurale lorsque l'exploitation entraîne des nuisances pour eux.

3. La présence de la certification FSC et fortement associée à l'existence de mécanismes de partage des bénéfices. Ces mécanismes ont une redistribution plus performante que ceux qui sont mandatés par les cadres juridiques existants. Dans quelques cas, les entreprises avec UFA non certifiées ont également établi de tels régimes, mais ils s'avèrent moins bien organisés et gérés. Compte tenu des défaillances des systèmes publics de partage des bénéfices, les régimes privés sont très bien accueillis par la population locale, car ils contribuent souvent directement à l'économie locale. Dans les UFA certifiées, la redistribution se produit régulièrement dans tous les villages riverains (contrairement aux UFA non certifiées). L'approche utilisée dans les UFA certifiées permet un contact plus ouvert, dynamique et régulier entre le personnel de l'entreprise et la population locale.
4. La présence d'une UFA, certifiée ou pas, n'est pas associée à des changements importants dans l'exercice de l'agriculture, de la chasse et de la collecte des produits forestiers non ligneux (PFNL). Certaines de ces pratiques sont cependant illégales. En particulier, à l'intérieur d'une UFA, la pratique de la culture sur brûlis (sauf, dans une certaine mesure, dans les champs qui existaient déjà au moment de l'UFA a été attribuée), de la chasse et de la collecte des PFNL avec des moyens non traditionnels et à des fins commerciales sont interdits par les lois des trois pays de l'étude. Alors que le niveau d'activité est similaire dans les UFA certifiées et non certifiées, les populations vivant dans les UFA certifiées se considèrent comme davantage contraintes par les nouvelles réglementations que celles qui vivent autour des UFA non certifiées.

En effet, les entreprises avec UFA certifiées introduisent des procédures et des règles pour appliquer la loi et embauchent du personnel pour les faire respecter. En revanche, compte tenu de la faiblesse générale de l'application des lois par l'Etat, les entreprises avec UFA non certifiées ont beaucoup moins de pression pour faire respecter la loi, en particulier pour des questions qui ne sont pas directement liés à l'exploitation du bois d'œuvre. Elles peuvent ainsi adopter une position de plus grande tolérance vis-à-vis des pratiques coutumières locales, même si elles vont à l'encontre de la loi. Paradoxalement, sur cette question, il y a une plus grande chance d'obtenir la paix sociale dans les UFA non certifiées.

Dans l'ensemble, les résultats indiquent que c'est seulement après que les compagnies ont décidé d'adopter la certification que plusieurs améliorations sociales pratiques ont eu lieu. Nous pensons que les résultats sociaux positifs obtenus dans les UFA certifiées, plus que dans les non certifiées, ont eu lieu parce que les entreprises ont dû fixer et respecter un calendrier de mise en œuvre des critères de la certification, qui ont ensuite été vérifiés par des évaluations annuelles. Ces vérifications régulières poussent les entreprises à améliorer constamment les normes sociales font encore défaut dans les cadres juridiques nationaux et dans les services forestiers mandatés pour les faire respecter. Ces derniers sont largement sous-financés (en termes humains et financiers) et manquent de la formation nécessaire pour vérifier les performances sociales des entreprises.

Des résultats sociaux positifs résultent également du maintien par les entreprises certifiées d'un canal de communication permanent avec la population locale, afin d'éviter des perturbations inattendues ou des conflits sociaux qui pourraient non seulement interférer avec les opérations d'exploitation, mais aussi augmenter le risque de mauvaise réputation pour l'entreprise. Les efforts de dialogue avec les populations, notamment via des institutions locales actives, constituent sans doute une de caractéristiques les plus frappantes des UFA certifiées. Bien sûr, l'existence d'institutions ne signifie pas que tous les conflits disparaissent, mais le dialogue permanent établi entre les sociétés forestières, les populations locales

et, souvent, les parties externes (par exemple les fonctionnaires de l'Etat et des ONG locales et internationales) marque une rupture nette avec la façon dont les activités d'exploitation forestière étaient menées dans le passé.

Les changements positifs mesurés ne signifient pas que des effets positifs à long terme se produisent sur les conditions de vie de toutes les personnes vivant dans et autour des UFA certifiées. Pourtant, les variables sociales mesurées par cette étude semblent indiquer que les progrès vers la gestion durable des forêts ont été produits plus par la certification que par les lois en vigueur. Dans certains cas, les améliorations apportées par la certification ont corrigé des défaillances de gouvernance, tels que l'application inexistante ou faible de la loi. Parfois, elles ont incité les entreprises à adopter des mesures dépassant les prescriptions légales, mais répondant aux attentes d'un marché très exigeant. D'autres fois encore, les améliorations ont signifié que les entreprises avec UFA certifiées ont dû pallier le rôle d'un Etat absent pour éviter des situations qui auraient pu nuire à leur certification. Cette démarche peut avoir des impacts sociaux positifs, mais elle risque aussi de conforter le sentiment que ces sociétés peuvent supporter efficacement certaines fonctions régaliennes, alors qu'elles devraient au contraire les abandonner.

Au total, les différences mesurées permettent une comparaison claire de la performance sociale des entreprises avec et sans UFA certifiées. La réalité historique et politico-économique complexe dans laquelle la certification a évolué dans le bassin du Congo rend les questions d'attribution et de causalité difficiles à cerner. Pourtant, les résultats permettent d'établir qu'une nette différence existe actuellement entre le bois certifié et non certifié : le premier trouve son origine dans des UFA où non seulement les normes sociales exigées par la loi sont mises en œuvre, mais aussi des normes volontaires qui sont de qualité supérieure et plus efficaces.

Il ne faut pas que le FSC et les sociétés certifiées soient complaisantes en se comparant à des UFA non certifiées, qui à l'heure actuelle sont moins bien gérées. En effet, toute la logique de la certification FSC est d'évaluer les gestionnaires forestiers plus responsables avec des normes

toujours plus performantes, quelle que soit la qualité de la législation nationale. Mais il ne faut pas non plus oublier que les entreprises avec UFA certifiées dans les pays de l'étude sont chaque jour en concurrence avec des entreprises non-certifiées qui produisent les mêmes espèces et vendent sur des marchés similaires, mais avec

des investissements beaucoup plus faibles, en particulier pour l'amélioration de leur performance sociale. Dans ce domaine très concurrentiel, et avec les primes limitées obtenus jusqu'ici, les résultats présentés indiquent que la certification dans le bassin du Congo a été en mesure de pousser les entreprises vers un progrès social significatif.

1 Introduction

Since the first half of the 1990s, forest certification has been promoted as a means to tackle global deforestation and forest degradation. It emerged as a market-based response to the failure of intergovernmental processes to establish a global compact on forests (Romero et al. 2013). The underlying logic is that the market should be able to reward companies producing timber according to rigorous, comprehensive and independently audited standards (Steering Committee 2012). To some scholars, forest certification is one of the most important developments in forest governance in the last couple of decades and an alternative to the failure of traditional, largely public regulations to address social and environmental problems (Cashore et al. 2004; Agrawal et al. 2008).

Among existing initiatives, the voluntary, market-based, third-party certification system (Marx and Cuypers 2010) offered by the Forest Stewardship Council (FSC) is the most prominent scheme for the certification of responsible forest management in the tropics. The FSC has been promoted by environmental and social groups, and more recently also by businesses and governments. The FSC scheme checks companies and forest management units (FMUs)¹ against a set of principles, criteria and indicators to assess whether management is environmentally appropriate, socially beneficial and economically viable.

Many acknowledge the positive impacts that the FSC has had on international standard setting since the 1990s, particularly the increased legitimacy of third-party-audited products on the world's markets (e.g. Cashore et al. 2004;

Steering Committee 2012), and on public policies in general (Overdevest and Zeitlin 2012). Under such governance-oriented analytical frameworks, Cashore et al. (2004; 2005) have particularly contributed to the analysis of forest certification as a nonstate governance approach and an alternative to traditional public regulations, driven by international markets and consumers' choices. In parallel, several authors have also focused on the drivers and the motivations of logging companies to certify — with marketing advantages, environmental benefits, and improved public image often mentioned as the main reasons for seeking forest certification (Espach 2006; Rickenbach and Overdevest 2006; Chen et al. 2010).

As for impacts on the world's forests, much scattered evidence suggests that localized positive impacts exist in or around certified FMUs (e.g. Durst et al. 2006; Espach 2006; Schulte-Herbrüggen and Davies 2006; Auld et al. 2008; van Kuijk et al. 2009; Cerutti et al. 2011; Damette and Delacote 2011; Nasi et al. 2012), although there still is insufficient empirical evidence to generate lessons learned at the global scale (e.g. Blackman and Rivera 2011; Romero et al. 2013; Visseren-Hamakers and Pattberg 2013). In particular, although the FSC standard has a strong social component that seeks to improve relationships between logging companies and local populations and contribute to local development, social impacts are under-researched, and what research exists has yielded conflicting results.

For instance, outside the forestry domain, De Lima et al. (2008) assessed the impact of FSC on agro-extractive communities in Brazil and found no significant difference between certified producers and a control group. Similarly, Bass et al. (2001) analysed the outcomes and impacts of

¹ Forest management units are forests managed for timber purposes by legally recognized industrial entities as concessionaires. One company might be responsible for multiple FMUs in different countries (Romero et al. 2013)

forest certification on stakeholders in five countries (Bolivia, Honduras, Mexico, Papua New Guinea and Zambia) and acknowledged the difficulty of isolating the effects of forest certification from those of external processes like new policies and existing legislation.

Chan and Pound (2009) reviewed 58 studies on forests and agriculture to assess the effect of certification on poverty reduction. Although the long-term impacts remain uncertain, the authors found that certification had positive social effects by improving working conditions, facilitating democratic processes within producers' organizations and enhancing participation in decision-making. Similarly, the Rainforest Alliance (2012) and WWF (2010) found evidence of increased wages and improved safety conditions in certified concessions, while Simula et al. (2004), in a selection of case studies conducted in forest concessions and plantations in Brazil, Malaysia and Indonesia, found that land tenure had become clearer with certification through conflict resolution between companies and local populations.

In the Congo basin, the focus of this paper, there have been a limited number of assessments of the social impacts of forest certification and particularly its expected benefits for the local population (e.g. Martinet 2008; Lewis et al. 2010). More robust evaluations have not yet been possible because of the very recent history of FSC in the region. After a false start with the unfortunate experience of the firm Leroy Gabon in 1996,² the first currently valid certificate in the region was granted at the end of 2005. As of 2013, however, the Congo basin had the largest area of certified natural tropical forest in the world, with about 5.3 million ha (info.fsc.org).

The objective of this study was to (1) assess the social impacts of FSC-certified and noncertified management units in Cameroon, Gabon and the Republic of the Congo, (2) compare outcomes between the two groups, and (3) try to ascertain

whether differences in outcomes can be ascribed to the adoption and implementation of FSC certification. As criteria for comparison, it focused on social behaviours that the FSC is intended to influence, as documented in the *FSC Forest Stewardship Standard for the Congo Basin Region* (hereinafter the FSC Standard, Forest Stewardship Council 2012) — and particularly on the legitimacy and effectiveness of local institutions and benefit-sharing mechanisms.

Legitimacy refers in this context to the fairness of the information-gathering process. For a process to be legitimate, it needs to consider “appropriate values, interests, concerns, and specific circumstances from the perspective of different users” (Mollinga 2010, S-3). Effectiveness refers to the ability to influence the actions of logging companies to avoid or reduce potential conflicts with local populations (Auld et al. 2008), as well as to improve or at least maintain the quality of life of the concerned communities.

More specifically, this research tries to answer the following questions:

1. How do working conditions (including occupational health and safety) differ between certified and non-certified FMUs?
2. How do the living conditions of workers and their families differ between certified and non-certified FMUs?
3. How do institutions set up by companies in certified and non-certified FMUs differ and for what reasons? What specific functions are attributed to institutions, and with what results on legitimacy and effectiveness?
4. Are existing institutions legitimate, effective and equitable means for the local population to discuss, through locally designated or elected representatives, their expectations vis-à-vis logging companies?
5. Are institutions socially legitimate and able to regulate forest uses, so as to prevent or minimise conflicts that may occur among different users on the same forested space?

‘Institutions’ serves in this paper as a synonym for associations, committees and platforms set up to facilitate discussions between the local populations and logging companies and foster local development. We focus on institutions and benefit-sharing schemes not only because they represent one of the major corrective actions

² Leroy Gabon's certificate was suspended shortly after it was issued amidst complaints by national and international NGOs about non-compliance with the FSC standard, in particular poor stakeholder consultation, lack of a forest management plan, and the presence of a protected area aside the logging concession (Eba'a Atyi 2006).

required of logging companies by auditors (Newsom and Hewitt 2005), but also because they are mandated by all forest laws in the region. Indeed, they stem from the decentralization of natural resource management that has been underway since the late colonial period (1950s) in many countries, including those in the Congo basin, with the objective of empowering local people and marginalized groups (Karsenty 1997;

Larson and Ribot 2005; Colfer 2011). However, to date, in the Congo basin, the proliferation of local institutions has largely failed to achieve positive economic and social impacts (Assemble Mvondo 2005; Oyono and Efoua 2006), and we believe it is thus relevant to investigate whether differences might exist with the more recent institutions created through FSC certification.

2 The forestry sector in selected countries

Social criteria and benefit-sharing mechanisms implemented by logging companies in the selected countries, are shaped by both the local social context and existing laws, whose theoretical aims are not very different from those of the FSC. All current forest laws in the countries of the Congo basin were influenced by the 1992 Rio Declaration principles of sustainable forest management, as is the FSC; and all countries have ratified the major relevant international conventions (such as those on labour and human rights), which are also reflected in the FSC standards.

Yet differences remain in both implementation and control. For instance, Cameroon has the most mature law and the largest number of approved management plans in the region. The law requires logging companies to develop management plans after conducting extensive consultations with neighbouring populations. This is intended to increase the population's engagement in forest management and foster local development. For such consultations to take place on a regular basis, the law mandates the creation by the Ministry of Forests and Wildlife of local forest management committees. Yet, although many management plans have been approved, functional committees have not been established by Ministry officials around most FMUs, and the social element of most management plans remains very weak (Vandenhoute and Doucet 2006; Lescuyer et al. 2012).

Before companies in Cameroon, Congo and Gabon could obtain their first FSC certificates, between 2005 and 2008, auditors asked that they not only show evidence of fulfilling the FSC principle of respect of national laws, but also evidence that the letter of the law was being implemented and translated into effective outcomes. For instance, companies had to

show clear evidence of meeting another FSC principle, that frameworks for multi-stakeholder consultations were in place and operational.

Under these conditions, several legal and voluntary rules started to be combined during daily forestry operations. On social issues in particular, voluntary rules helped fulfil the legal ones. For instance, the implementation of negotiated agreements (e.g. on infrastructure improvements or local development projects) or benefit-sharing mechanisms (e.g. redistribution of forestry taxes), started to be monitored by multi-stakeholder platforms. These, lacking a determined engagement by Ministry officials, had to be created and regularly supported by logging companies and regularly monitored by certifying bodies. In some cases, dysfunctional public benefit-sharing schemes were coupled with private schemes, in which FSC-certified companies (and some noncertified ones) funded local development projects managed by the same multi-stakeholder platforms.

As public and private rules keep operating together and mixing on the ground, their boundaries become blurred and it is now often difficult to clearly demarcate legally mandated (public) from voluntarily established (private) institutions and benefit-sharing mechanisms. This trend is also fostered by a common characteristic of law-making in the Congo basin: the many years that may pass between the legal requirement to create an institution or mechanism and its actual creation through an implementing decree or regulation (see the discussion of Gabon below). Meanwhile, logging companies and decentralized state officials, often unaware of legal or regulatory reforms initiated at the national level, face increasing public expectations while the legal basis for implementation remains incomplete. In order to avoid local conflicts, they fill the gaps with private

initiatives, which in turn often inform future legal prescriptions.

Public benefit-sharing schemes (taxes or fees mandated by law to be redistributed) annually redistribute about €10.5 million, or about 28% of the total amounts collected by the three countries as forestry taxes in 2010 (www.observatoire-comifac.net).³ Money redistributed in Cameroon alone represents about 80% of that amount, or an average of about €20 per person per year (Cerutti et al. 2010). However, countries have different taxation and redistribution policies. For instance, Congolese law also imposes an area fee that has to be redistributed to decentralized departments for their development, which is not accounted for here because it does not directly concern concessions' neighbouring villages.

The next three sections provide a short introduction to each study country's forestry sector, summarizing what is required by law, the level of compliance, and what logging companies have voluntarily implemented. The latter question will be the focus of this document, but a preliminary understanding of the former might help in understanding existing blurred boundaries.

2.1 Cameroon

The 1994 Forest Law and its 1995 implementing decree,⁴ followed by dozens of rules, regulations, orders and official procedures, regulate the forest sector in Cameroon. The 1994 law aimed at fostering sustainable forest management while improving the contribution of the forestry sector to the national economy. The sector represents about 4% of GDP (CIFOR and MINFOF 2013), provides about €62 million of annual revenues to the state's coffers and has been sustaining about 13,000 formal and 45,000 direct informal jobs (Cerutti and Lescuyer 2011).

Workers in the formal sector must be registered with the national social security fund (*Caisse Nationale de Prévoyance Sociale*). In case of an accident resulting in death, eligible survivors receive a pension and funeral expenses allowance paid by the national social security fund. The pension is paid monthly and is equal to 85% of the average monthly salary.

As of 2011, Cameroon had 7.1 million ha of forest allocated into 111 FMUs (averaging about 64,000 ha per FMU), 72 of them (about 5 million ha) operating under an approved management plan (Global Forest Watch and MINFOF 2012). An approved plan is one of the main conditions for the long-term allocation of FMUs to logging companies, for a period of 15 years, renewable once. Currently, five companies managing 14 FMUs are FSC certified, representing about 940,000 ha or an average of 67,000 ha per FMU (Table 1). Hence, about 65% of existing FMUs have an approved plan, while about 13% are FSC certified.

The management plan mandated by the law should be revised every five years; it provides silvicultural details (e.g. annual allowable cuts, rotation and regeneration rates) as well as demographic data on neighbouring villages and social infrastructures. The existing plans remain focused on timber production and are rather weak on production of other goods and on environmental and social issues (Vandenhoute and Doucet 2006; Cerutti et al. 2008).

The law guarantees customary rights inside FMUs even with a management plan in place. Hunting is allowed with traditional means and for personal consumption. Non-timber forest product (NTFP) collection and access rights are also guaranteed. Farmers can maintain fields that existed before the creation of the FMU, but are not authorized to open new ones.

In terms of social impacts and benefit-sharing mechanisms aimed at improving the livelihoods of people living in and around FMUs, three major schemes exist, one public and two private. On the public side is the forest area fee (*redevance forestière annuelle*, or RFA), paid annually by logging companies to the state. Half of this must be redistributed to the town councils neighbouring the FMU (40% of the total) and villages (10% of

³ Forestry taxes are generally considered to include the area fee, stumpage fee and sawmill entry fee. The forestry sector also contributes revenue through many other taxes such as the export tax, Value Added Tax and social security.

⁴ Law No. 94/01 of 20 January 1994 on the Regime of Forestry, Wildlife and Fisheries; Decree No 95/531/PM of 23 August 1995.

Table 1. FSC-certificates in Cameroon.

Company	Management Unit	Area (ha)	Year certified ^a
Pallisco, Assene Nkou, SODETRANCAM	10-030, 10-041, 10-039, 10-044, 10-031, 10-042	344,605	2008
Wijma	09-024	55,078	2008
Wijma	09-021	41,965	2005
Wijma	09-022	61,301	2010
CAFECO	11-005	80,800	2010
SFIL	10-052	69,008	2010
Rougier	10-056	73,660	2013
Rougier	10-038	67,257	2013
Rougier	10-054	144,750	2013

a This refers to the first year in which a forest management certificate was awarded (i.e. there was no prior certification under a different name or by a different certifying body).

the total) to foster local development.⁵ Since 2000, the RFA represents the largest forestry-related state revenue, with about €7–10 million redistributed each year to about 50 villages (Cerutti et al. 2010). The private schemes are (1) contractual agreements (*cahiers des charges*) with a list of monetary or in-kind contributions by the logging companies to neighbouring villages (e.g. for school renovation, health centres and water supply systems), and (2) ad-hoc short- and long-term schemes (e.g. financial and technical support for local discussion platforms to facilitate relations between the company and the local populations).

Since 1999, the law also requires the setup of forest management committees (*comités paysans-forêts*) to foster the participation of local communities in

forest management. The committees' mission is to be a permanent interface between communities and companies, with the participation of the state administration and NGOs when necessary, to collect complaints and arbitrate conflicts, and to identify and manage development projects that could be funded through private or public schemes (Tsanga et al. 2014). Although the law calls for local Ministry of Forest and Wildlife staff to implement the forest management committees, in practice the committees almost only exist where logging companies are actively engaged in establishing and maintaining them.

2.2 Republic of the Congo

Forests in the Republic of the Congo are regulated by the 2000 Law, mandating sustainable forest management of all production forests, and by a 2002 decree establishing the conditions for management and use of the resource.⁶ The forestry sector contributes about 5.6% to GDP; it represents the second largest source of income after oil and provides about 7,400 formal and 3,000 informal jobs (de Wasseige et al. 2009; Lescuyer et al. 2011b).

Seven concessions (about 3.6 million ha) have an approved management plan, out of 52 allocated in total (about 11.9 million ha or an average per

⁵ A recent decree further divided the council's 40% into 20% to the council and 20% to a central institution, (Fonds Spécial d'Équipement et d'Intervention Intercommunale, FEICOM), established to help all councils meet their development objectives. The decree also creates two institutions to manage the redistributed RFA. At the council level, the mayor and the municipal council make up the council committee, which may annually decide on the best use for the council's share of the RFA. The council committee has the legal obligation to use at least 80% of the total amount to fund local development. At the village level, community committees (*comité riverain*) are established to propose development projects (funded through their 10% of the RFA) that are annually proposed to the council committee for approval. The community committee has the legal obligation to use at least 90% of the total amount to fund local development and can use up to 10% to cover running costs. As these are public funds, monitoring and control pertain to competent state authorities.

⁶ Law 16-2000 of 20 November 2000 and Decree 2002-437.

Table 2. FSC-certificates in the Republic of the Congo.

Company	Management unit	Area (ha)	Year certified ^a
CIB	Pokola	452,200	2006
CIB	Kabo	296,000	2008
CIB	Loundoungou	571,100	2011
IFO (Danzer) ^b	FMU Ngombé	1,159,643	2009

a This refers to the first year in which a forest management certificate was awarded (i.e. there was no prior certification under a different name or by a different certifying body).

concession of about 230,000 ha). As of April 2013, two companies managing four concessions were FSC certified, representing about 2.5 million ha (Table 2). Hence, about 13% of existing FMUs have an approved plan, while about 8% of them are FSC certified.

Designing the management plan and managing concessions are both the responsibility of the forestry administration. In practice, however, given the limited resources of the latter, logging companies are given the responsibility of preparing and implementing the plans. Plans must include social and economic studies with the clear mandate to contribute to local development.

The law allows local populations in the FMUs to exercise some customary rights. People living around FMUs may collect forest products needed for building homes, energy, food, culture and medication. Hunting and fishing are also authorized, although the extent of such rights could be restricted by the management plan. Overall, use rights are free of charge and products can be harvested only for personal consumption.

There are three key benefit-sharing mechanisms aimed at improving the livelihoods of people living in and around concessions, two public (the area fee and the local development fund or *fond de développement local*) and one private (contracts or *cahiers des charges*). The forest area fee should in theory be split evenly between a centralized forest fund and the regions for their development. In practice, no implementing regulation has been issued and no funds have been distributed to the regions. The local development fund is mandated by the law to contribute to the development of Community Development Areas (*Série de Développement Communautaire*). It is set up by logging companies inside or around their FMUs with an approved management plan.

Implementing regulations state that a minimum of 85% of the fund must be used to fund projects of interest to the whole community, while up to 15% can be used to cover running costs of the institute managing the fund. The fund can be financed in three ways: by a fee (*redevance*) of about €0.3 per cubic meter of commercially valuable timber annually harvested by the logging company, by subsidies of the Departmental Council where the concession is located, and by donations from private or public individuals and institutions.

The local development fund has a steering committee that annually selects and approves projects to be funded. In accordance with implementing regulations, five groups are involved in the steering committee — local representatives of the government, departmental council, logging companies, NGOs and local communities — including at least three representatives of indigenous people and three women.

On the private side, social impacts are also expected through *cahiers des charges* negotiated by some companies with local populations, involving varying amounts and commitments.

2.3 Gabon

The forest sector in Gabon is regulated by a 2001 law.⁷ The sector represents about 4.3% of GDP and about 5% of exports earnings, and it is the largest industrial employer after the state, with about 13,000 formal and at least 1,000 informal jobs (de Wasseige et al. 2009; Lescuyer et al. 2011a). Workers in the formal sector must be registered with the social security fund (*caisse nationale de sécurité sociale*) and, since March

⁷ Law 016/01 of 31 December 2001 (Code Forestier en République gabonaise).

Table 3. FSC-certificates in Gabon.

Company	Management unit	Area (ha)	Year certified ^a
CBG	Manji/Rabi	352,100	2008
CBG	UFA Kivoro	216,443	2008
Rougier Gabon	Haut Abanga	288,626	2008
Rougier Gabon	Ougouél vindo	282,030	2008
CIFHO	Moyabi/Leke	117,606	2008
Precious Wood/CEB	CFAD CEB	581,490	2008

a This refers to the first year in which a forest management certificate was awarded (i.e. there was no prior certification under a different name or by a different certifying body).

2013, also with the new health and social security fund (*caisse nationale d'assurance maladie et de garantie sociale*).

As of 2011, 26 concessions covering about 6.1 million ha had an approved management plan, while 31 concessions covering about 5.5 million ha (averaging about 180,000 ha per concession) did not yet have a plan, and 26 further concessions (about 6.1 million ha) were not attributed (www.observatoire-comifac.net). As of April 2013, four companies managing six concessions were FSC certified, representing about 1.9 million ha or an average of 313,000 ha per concession (Table 3). About 31% of existing FMUs have an approved plan, while about 7% are FSC certified.

The law mandates that to receive an agreement to harvest an FMU, each company should prepare a management plan followed by an investment plan, to be reviewed every five years. The plan is completed by contractual clauses (*cahier de clauses contractuelles*) listing among other things the main species and the boundaries of the area where harvesting will take place.

Hunting with traditional means and for personal consumption, as well as NTFP gathering, is allowed inside concessions. Such activities, however, must be conducted only by the local population — outsiders are not allowed unless they build a home in the village and settle there.

As for social impacts and benefit-sharing mechanisms, the law mandates management plans to include socioeconomic studies in order to improve social and environmental conditions, and it requires logging companies to contribute to local development, notably through financial contributions. Yet there still exists no implementing regulation clarifying the amounts to be disbursed or the procedures for disbursement. Thus, companies are free to set up their own schemes, if any. Fieldwork conducted for this study indicated that the amount of the contribution is decided on a case-by-case basis, as negotiated between the company and the local population (and sometimes state officials) and determined in contractual agreements (*cahiers des charges*).

When redistribution occurs, either financial or in kind, generally a steering committee (*comité de suivi*) is set up to manage funds and/or project implementation. Also, several companies helped set up local institutions with the explicit aim to manage the financial contributions. In general, such institutions belong to single villages, so there are many of them, while steering committees tend to have a broader base, often representing more than one village. It is not unusual for a steering committee to include one or two members of each local institution, including women. In this case no indigenous people were identified in the study area.

3 Methods

The authors paired noncertified and certified FMUs based on their own knowledge, trying to ensure that the only difference between the two was the presence or absence of certification. Considering the small number of certified FMUs and budgetary and logistical constraints (Glew et al. 2012), we maximized similarity between the certified and noncertified groups by selecting proxy variables that helped reduce observable biases and systematic differences. This design is not rigorous enough to establish causality, as would be the case in an experimental or quasi-experimental design with large samples and a more rigorous construction of the counterfactual (Caliendo and Kopeinig 2008; Sekhon 2009; Rosenbaum 2010; Gertler et al. 2011). Indeed, although the study provides useful results that can help better explain the plausibility of causality, there might be variables — observable and unobservable — other than those considered here that could affect the probability of becoming certified. For that reason, a few plausible complementary explanations for the results obtained will thus be provided in the discussion section.

From the values promoted in the FSC Standard, variables were chosen that contribute to improved working and living conditions. Mechanisms to achieve this goal include directly improving the working conditions of employees (e.g. by providing a regular source of income and improved social services) and the economic well-being of the local population while also protecting the conservation of social values (principles 4, 5, 7–9). Other goals include securing recognition of the land rights and customary uses of the local population, particularly those of indigenous peoples (principles 2, 3).

For “forest management operations [to] maintain or enhance the long-term social and economic well-being of forest workers and local

communities” (principle 4), one key requirement of the FSC Standard is the existence and functioning of a framework for consultation between the logging company and multiple stakeholders in the local population. Such a framework is formally required for conflict resolution (indicator 2.3.2 of the FSC Standard), but also as a general condition under which criterion 4.4 (“Consultation shall be maintained with people and groups . . . directly affected by management operations”) can be fulfilled. As detailed in the previous section, such goals, albeit in somewhat different forms, are also mandated by the study countries’ forest laws.

The three hypotheses tested here are that the presence of an FSC certificate has had a positive impact on (1) the working and living conditions of employees and their families, (2) the effectiveness and legitimacy of the institutions set up to regulate relationships between companies and neighbouring communities, and (3) the latter’s rights and customary uses.

To test such hypotheses, a review was undertaken of the mechanisms adopted by logging companies in nine certified and nine noncertified FMUs (three in each category from Cameroon, Gabon and the Republic of the Congo) to regulate working conditions in sawmills and forestry operations, and to sustain relationships with villages neighbouring the FMUs. This task involved preliminary analysis of the documentation available from companies in certified and noncertified FMUs, in particular their management plans and socioeconomic studies as well as the planned social procedures and relevant written policies. The bulk of this literature shows the mechanisms adopted by forest managers to address social issues but does not provide definitive evidence of their implementation.

Table 4. Variables used in pairing FMUs.

Variable	Explanation
Alternative employment opportunities in the area	Similar employment opportunities focused on forestry operations help ensure that local economic impacts are largely based on those operations. FMUs close to adjacent forestry operations by other companies, large mining or agro-industrial sites could introduce biases (e.g. leakage) in local working conditions.
Dependence on cash crops for livelihoods and access to markets	Revenues generated through different cash crops and by easier access to local or regional markets could introduce biases in the historical capacities of people to organize themselves into cooperatives or conflict-prevention/resolution institutions.
Ethnicity	This is a proxy for social structure. It is very important when it comes to customary norms (including gender roles) that influence negotiations with outsiders including logging companies.
Political/administrative jurisdictions	Same district or other relevant administrative unit officer, especially those employed by the Ministries of Forests and Environment, which are likely to shape the behaviour of companies and citizens where operations occur.
Species harvested by logging companies and markets served	By selecting FMUs that produce similar tree species or products and largely serve similar markets, we tried to reduce biases introduced in the decisions taken by companies about whether to adhere to certification. This remains a debatable variable because it is also highly dependent on the market strategies of different companies, which are considered confidential and may change over time.
Special zones	These include legally and voluntarily defined forest set-asides, buffer or conservation zones, and special rules of exclusion or regulation of the use of resources by the local population (also part of the social structure), to account for potential differences in community perceptions of the effectiveness of harvesting operations.

3.1 Selection of FMUs and villages

In each country, three FMUs certified by FSC as of April 2013 (when this research started) were selected. We tried to minimize the use of multiple certified FMUs owned by the same company or group (although this could not be avoided in one country due to the small number of certified FMUs), to decrease the probability that similar results, especially in working conditions, would be due to shared management regimes. Certified FMUs were then matched to three neighbouring noncertified FMUs in each country, so that similar values of several proxy variables could be controlled (Table 4).

Further, to account for potentially different perceptions of the effectiveness of social structures or processes in the same FMU during different stages of the logging process, four villages neighbouring or inside each FMU were selected,⁸

in areas where forestry operations were currently ongoing, were planned for the coming year, or had been completed in the last year or two. In total, surveys were conducted in 69 villages.⁹ Villages were selected after information about logging history had been received from the concerned companies. Where there was a choice of more than one village for each stage, villages were selected based on accessibility and distance.

We minimized biases introduced by interaction effects, for instance by not selecting villages that shared a border with nonsampled FMUs or where other activities, such as mining or large-scale agricultural projects, could have an impact on local livelihoods. The authors' lengthy experience in the region indicates, however, that such minimization has a limited effect, because information on specific matters, such as money redistributed by a given company to a given village, travels fast even in remote rural areas.

⁸ In a country like the Congo, there are more chances to find villages inside an FMU due to the large area covered by the FMU and the presence of indigenous people in the area before its establishment.

⁹ Three villages were not reachable due to heavy storms and a lack of canoes and alternative tracks. They could not be replaced because no other village neighboring the concerned FMUs existed.

Finally, where no choice was possible (i.e., when relevant operations occurred far away from any village), surveys were duplicated in the remaining categories in which villages were available — e.g., if current operations were not linked to any village, two villages were selected in the completed (post-harvest) category and two in the planned (pre-harvest) category. The resulting sample contained 20, 21 and 28 villages in the pre-harvest, current and post-harvest categories, respectively.

The only selection control we exerted on the management status of noncertified FMUs was that a management plan, whether in draft or approved form, had to exist. This was done to avoid overestimating the impacts of FSC certification, and was based on the assumption that, if a plan existed, even in draft form, social interactions with neighbouring villages would likely have already taken place, as mandated by the law. Overestimation of the impacts of FSC certification may still occur when comparing FMUs with approved and nonapproved plans. Yet in a context of weak governance, any differences between the two might also reflect the actual gap that exists between certified and noncertified FMUs, as having an approved plan is a fundamental requirement of certification.

After selection, companies and villages were contacted and asked whether they were willing to participate in the study. Companies' participation required willingness to share both public and (if needed) internal documents. Because of the risk of companies influencing workers and village residents (e.g. their statements during interviews), companies were asked to facilitate access to facilities only where absolutely needed in order for the study to proceed (e.g. where access to FMUs must be granted by the company management team). Regardless of whether a company agreed to participate, interviews in the villages connected to the company's FMU were conducted, if the villagers agreed to participate. This approach may have prevented some types of information, or indeed some categories of people (e.g. employees of nonparticipating companies), from being included in the study. But overall, sampled villages were accessed without need for authorization from company or state officials.

3.2 Surveys

In selected FMUs, surveys were conducted in different settings to collect two types of data: on working and living conditions, and on institutions, benefit-sharing mechanisms and customary uses. First, we asked company managers and staff questions related to working conditions and living standards of staff and their families — both at the work site, i.e. sawmill or harvesting site, and in the *bases vie* or compounds where the company provides housing, services and facilities for workers and their families. Second, questions related to institutions and customary rights were asked in the villages neighbouring the FMUs.

For general and usually noncontentious information (e.g. background information on the village and the presence of infrastructure), focus-group discussions were organized. All extended families or lineages were asked to send representatives to the focus groups. This was done by asking the chief of the village and the potential focus-group attendees whether they agreed that all extended families were indeed represented, with special attention to including indigenous groups. This information was also cross-checked with social transects, discussed further below. Where the sociocultural environment did not favour good representation of women in focus-group discussions, the interviewers tried to hold separate discussions with women.¹⁰ After introduction of the study to the population represented in the focus group, participants were selected — randomly except for the attempt to maintain a gender balance — from those who expressed willingness to participate in one-to-one semistructured interviews.

After focus-group discussions and one-to-one interviews were held, social transects were undertaken. These entailed a walk from one end of the village to the other, with the village chief or one or more delegates discussing and explaining a set of researched information (de Zeeuw and Wilbers 2004; NGO Programme Karnataka-Tamil Nadu 2005). The latter included the location and

¹⁰ Interviews were conducted by seven people — two women (one Cameroonian and one Gabonese) and five men (two Cameroonians, two Congolese and one Gabonese) — rotating through the three countries in teams of three in different periods from May to September 2013. Interviews were conducted in the local language where necessary, but more often in French.

characteristics of each building and element of infrastructure encountered during the walk (mainly the date of construction or renovation and the funders). Transects were also used to triangulate information obtained in other one-to-one conversations with the chief, who is usually more free to speak in private. They were also used to check whether the lineages and indigenous groups listed during the focus-group discussion were the same as those encountered during the transect.

A total of 69 village focus-group discussions were held, along with 364 one-to-one semistructured interviews and 52 social transects (Table 5).

Assessed variables were organized under three themes as summarized in Table 6. (Please refer to the Appendix for a detailed list.)

Data on customary rights were aggregated for each FMU through a two-step approach. First, several similar questions were asked in both focus-group discussions and individual interviews with key people, in order to triangulate information on sensitive issues such as hunting or conflicts about use. For the most part, information from both sources was consistent. Second, results from each village were aggregated at the FMU level. When differing results were obtained from villages belonging to the same FMU but to different harvesting periods, we selected the most frequently

mentioned impact and provided a qualitative discussion about the differences.

In addition to interviews, a literature review was conducted to assess the political economy of the forestry sector in the region and to try to explain why differences materialized (or did not materialize). Also, to complement the more quantitative variables collected during interviews, and to better qualify the strengths and possible constraints of institutions, both local communities and external actors (including elites and logging companies) were interviewed. In these interviews, we asked about their perceptions of institutions and their representatives, the most common types of conflict and their underlying interests. This step also aimed at complementing and verifying the accuracy of factual information collected in the villages (e.g. amounts of taxes paid and existence of new management rules and investments).

Two noncertified companies were unable to provide complete data on their workforce. In those cases, special efforts were made to contact the companies several times before and after data collection. After data collection, we visited, phoned or emailed companies to ask for data they had promised during the interview which were not readily available onsite or needed further clarification. In such instances, lack of data on company staff could thus be interpreted as an

Table 5. Types of surveys.

Survey	Format	Certified/noncertified (gender)
Conditions of workers in forestry and sawmill operations	One to one	27/26 (all men)
Managers of logging companies	One to one	7/7 (3 women and 11 men)
Active members of committees, associations or local platforms	One to one	12/8 (3 women and 17 men)
External members of active committees (local officials, mayors, NGO representatives)	One to one	11/3 (4 women and 10 men)
Population of villages neighbouring the FMUs	Focus group	34/35
Farmers, hunters and gatherers from villages neighbouring the FMUs	One to one	134/125 (107 women and 152 men)
Social transects (generally with village chief or delegate)	One to one	26/24 (all men)
Informal and unstructured interviews	One to one and one to many	58/53 (gender not recorded)

Table 6. Themes and variables.

Theme	Working conditions at logging sites and in and around sawmills, and living conditions in and around the <i>bases vie</i>	Institutions, consultation, and benefit-sharing mechanisms, and living conditions in and around neighbouring villages	Customary rights to forest resources
Variables	• Existence and condition of mini-markets (<i>économats</i>) • Availability and quality of water • Safety conditions and quality of mechanisms to address injuries • Existence and implementation of rules for employment of local population • Salary ranges • Type of social insurance provided by the company and whether it is in line with national requirements • Type of associative bodies • Quality of housing	• Institutions and their governance • Evidence for existence and quality of public consultation • Existence and types of mechanisms for consultation, sharing of outcomes and follow-up consultation with neighbouring villages • Quality and quantity of benefits • Quality of impacts • Availability and quality of health services • Availability and quality of education opportunities • Types of infrastructure provided • Existence of cultural assets (e.g. community halls and churches)	• Existence and quality of mechanisms for compensation of damages to property, resources and livelihoods • Quality, availability of, and impacts on rights to game, land, and NTFPs • Protection and availability of cultural sites • Existence and enforcement of negotiated rules and their perceptions by the local population

Note: "Workers" are understood as all people paid for work, directly by the company and indirectly through subcontractors.

honest incapacity to, within a reasonable amount of time, provide a clear answer about how many staff the company employs, from which countries, how many are insured, and so on. It is likely that with more time and effort (or more persuasion), such data could be collected.

Lastly, a critique often addressed to companies with both certified and noncertified FMUs, which is also relevant to this study, is that in countries with weak governance, the existence of an officially approved or audited plan (such as a forest management plan approved by the government or a waste disposal plan checked by a certifying body) does not per se mean that the plan will continue to be implemented after the evaluation period. To conduct research with the sole aim of checking such discrepancies would have required a different approach, such as longer and repeated visits in the locations where procedures are supposedly implemented. Nonetheless, the surveying teams spent several days researching each FMU, always residing in the villages where the procedures are supposed to take place and affect living conditions; an effort was made to triangulate information. In addition to the formal questions asked during official interviews, we crosschecked

answers through more than 100 informal questions on whether and how procedures were being implemented during the everyday lives of workers and their families.

3.3 Analysis of data

Data from certified and noncertified FMUs across all countries were pooled and compared. Although a brief country background has been presented, grouping FMUs and companies working in different socio-political contexts in different countries might obscure important country-related trends and preclude lessons to be learnt on a country basis. Our decision was based on several reasons. First, all analyses were initially conducted on a per-country basis. Although the aggregate values of a few variables are influenced by one country more than another, overall results do not show significant differences among countries for most variables. This is also likely a consequence of all countries having very similar legal frameworks and coming under the same FSC regional standard. This makes us confident that no major trend has been overlooked by aggregating country-level data.

Second, the study guaranteed anonymity and confidentiality to all participating companies and individuals. Indeed, most companies required us to sign confidentiality and anonymity agreements as a condition of their participation in the study. Country-level anonymity became an issue only later, when during interviews both state and company officials raised concerns about comparisons between certified and noncertified FMUs, and their parent companies, in different countries. For both, it was important that the study maintained a focus on comparing certified and noncertified FMUs, without entering into country-specific details. Their fear was that results could be interpreted in a way that ranked the countries rather than comparing certified and noncertified FMUs. For State officials, it was also important to respect the sensitivity of the issue because of its recent interactions with the EU's Action Plan on Forest Law Enforcement,

Governance, and Trade (FLEGT) in all the study countries. Interactions are meant here as decisions already taken by some producer countries to recognise FSC-certified timber as compliant with FLEGT requirements.

Given the small number of FMUs for which working and living conditions could be assessed through categorical data, the low expected frequencies, and the fact that most variables could be assessed through a 2 x 2 contingency table — the two variables certified and noncertified, each with two options, e.g. presence or absence of safety equipment — we used Fischer's exact test (Fischer 1922) to assess whether significant associations existed between certified and noncertified FMUs. Where higher frequencies existed (e.g. when comparing villages' responses), the standard Pearson's chi-square test was used (Pearson 1900; Fischer 1922).

4 Results

Results are described below for each measured variable or condition. Each FSC certificate for forest management is delivered to a FMU, and not to a company or a village. In this sense, references to a 'certified company' or a 'certified village' in the text below should be intended as a 'company with a certified FMU' or a 'village neighbouring or inside a certified FMU'.

4.1 Working and living conditions

Conditions can broadly be divided into two categories: those that exist in the workplace (forest or the sawmill), such as the existence of clear written rules for the use of safety equipment, and those that exist at the *base vie* (company housing). The information in this section is derived from 53 one-to-one interviews with workers at their workplaces, 15 one-to-one interviews with FMU managers and the documentation they provided, focus-group discussions in the villages, and informal discussions with workers held outside of working hours, mainly to triangulate and better qualify data collected during formal interviews. Two companies, one certified and one noncertified, declined to participate in the study. Thus, access to company data and staff was not granted. Hence, results on working conditions compare 16 FMUs (eight certified and eight noncertified).

In several cases, companies with noncertified FMUs and without a third-party-audited chain of custody were unable to provide general data about working conditions, particularly regarding staff and their registration with national social security schemes. This lack of data reflects the limitations in organizational capacity in some of the companies with noncertified FMUs, which fail to follow even

weakly enforced national regulations. Conversely, in companies with certified FMUs, accessing available statistics went relatively quickly because most of the statistics were already collected for the companies' own internal functioning and because they have to be regularly provided to certifiers. This was also true for four noncertified FMUs whose owners agreed to participate in the study. In general, however, noncertified companies tended to have more difficulties in searching out data, which could indicate lower standards in their internal organization, with all the consequences that this deficiency entails for staff (e.g. in terms of national insurance registration).

4.1.1 Économat

An *économat* (a kind of minimarket provided by the company where workers, their families, and often the general population can buy daily necessities) usually only exists where there is a *base vie*. In some cases, however, companies provide *économats* for workers even in the absence of a *base vie*. Two noncertified companies participating in this study had neither a *base vie* nor an *économat*. In both cases, companies rented houses in villages bordering the FMUs, and staff could buy provisions at the local markets in those villages.

All *économats* sell similar products with more or less variety in the items that can be purchased over the year. The most common products are bread, water, sardines, oil, vegetables and sources of protein alternative to bushmeat, such as smoked fish, chicken, turkey, pork and, to a lesser extent, beef. Workers in certified FMUs said they found the quality of the service provided by *économats* improved (especially in terms of more regular and better supply) since certification occurred. Staff in noncertified FMUs did not report any particular improvement in recent years.

To the question of whether prices equivalent to those in nearby villages or towns prevailed in company-managed *économats*, a higher proportion of respondents from certified FMUs (72%) than from noncertified ones (48%) indicated satisfaction with prices. Higher satisfaction in the certified group may be due to the fact that certified companies subsidize prices by refraining from charging for transportation from the closest markets.

4.1.2 Water, sanitation and electricity

One certified and two noncertified FMUs did not have potable water at the time of the interviews. Reasons for this lack differed. In the certified case, several wells and water distribution networks had been built, but water was contaminated with heavy metals that at times rendered it undrinkable. Auditors have described the situation at length in public reports, and the company adopted several technical measures including a procedure to adopt when water becomes undrinkable. The noncertified companies had made no effort to provide safe drinking water.

Both the number of wells and the reach of the distribution system varied among *bases vie*. Although difficult to quantify, direct observations and reports by interviewed workers indicate that certified companies invest a lot more money and effort in providing and maintaining a permanent system for delivering both drinkable and nondrinkable water, able to reach all homes in the *base vie* and to support all basic water needs (drinking, washing and cooking). Noncertified companies tended to dig a single well, if any, with a reduced pipe system, which only in one case reached all workers' homes.

Differences were also evident in the distribution systems for nondrinkable water, with a significant association existing between FSC certification and the presence of home showers and WC systems in all homes in the *base vie* (100% of certified and 46% of noncertified; $p < 0.001$). The quality of such systems differed among FMUs in the certified group (e.g. showers inside vs. outside the main home, with the latter easier to maintain properly), but their quality is superior when compared to the nonexistent systems in about 80% of noncertified FMUs, where workers still have to rely on what is available. In one

noncertified case, workers had to rely on rivers to satisfy their needs.

Another service appreciated by the local population is the provision of electricity where a sawmill exists. In all certified and noncertified FMUs with a *base vie*, electricity was provided free of charge to all houses. In all certified sites and half of noncertified sites, it is provided 24 hours a day, 7 days a week. In the other noncertified sites, electricity is still free but is available for a reduced number of hours (18:00–22:00 or 16:00–06:00) Monday to Saturday and for 24 hours on Sundays.

4.1.3 Safety

All companies with certified FMUs and 75% of those with noncertified FMUs provided safety gear to their workers, renewed twice a year, both in the forest and at the sawmill (Figure 1). In one noncertified FMU, employees stated that they did receive equipment a few years back, but that it was of very bad quality and was never renewed.

A significant difference was found both in the existence of procedures to control and verify the use of safety equipment and in the way such procedures were implemented (Figure 1). There was a significant association between certification and the existence of safety procedures (90% of certified and 25% of noncertified FMUs; $p < 0.05$). A designated staff person has the responsibility to monitor and verify, every day before operations start, that all relevant personnel wear functional and appropriate equipment. Personnel without the appropriate equipment are not authorized to enter the sawmill or take part in harvesting operations. This latter information was cross-validated with workers in both formal and informal interviews.

Another major difference between certified and noncertified companies that do apply safety measures is that the former also have a well-planned schedule for training while the latter generally do not. In the best cases, certified companies charge one staff member (normally the chief of services) to conduct an annual evaluation of staff training needs and, based on the evaluation, to prepare and implement an annual training plan. Courses in security, fire prevention, directional felling, chain of custody (*tracabilité*) and several other topics, taught by specialists hired by the company, are offered regularly during working hours to relevant staff.

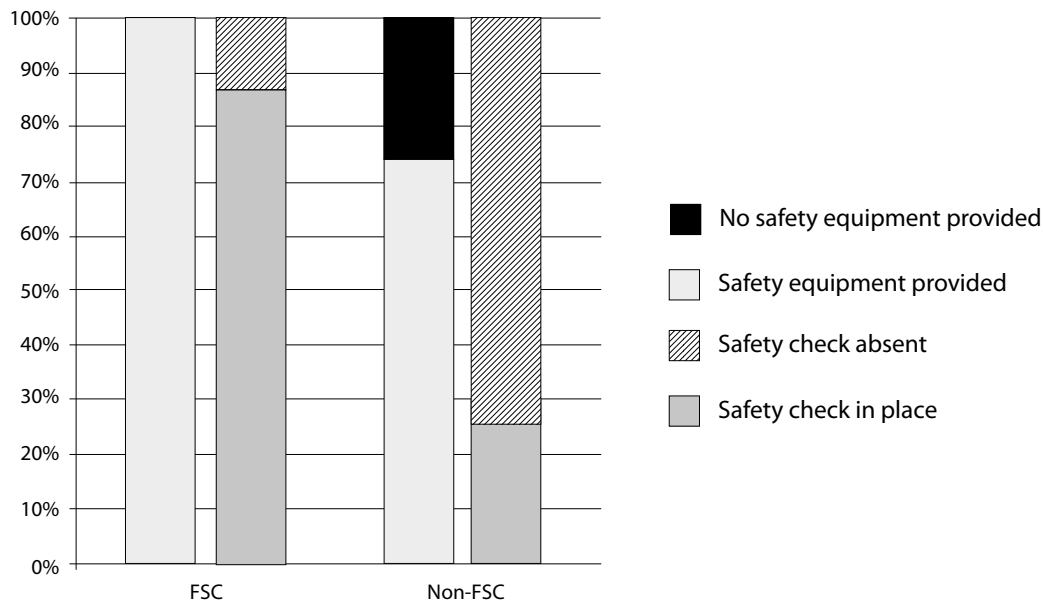


Figure 1 Safety equipment and procedures to verify its effective use.

4.1.4 Injury-related procedures, medical facilities and life and health insurance coverage

When asked, managers and workers of both certified and noncertified FMUs indicated that they know what to do in case of work-related injuries. Three differences, however, set certified and noncertified companies apart (Figure 2). First, a significant association exists between certification and whether companies had injury-related procedures in place (88% of certified and 12% of noncertified companies; $p < 0.01$). Such procedures, reportedly in preparation in the only noncompliant certified company, coupled with regular training on security matters, make staff aware of what to do and when and how to do it.

The presence of written procedures is not, in itself, a guarantee that when injury occurs, the procedures will be effectively applied. However, the answers provided by many staff to the casual question “what do you do in case of accident?” can be used as a proxy for effectiveness and provide a better understanding of why the existence of, and training on, written procedures are important. Taking the extremes of the continuum, from a worst- to a best-case scenario, staff at noncertified sites gave answers such as

There is always a camp around here where one can surely find something to heal or take care of an injury.

while staff at certified sites gave answers such as

Annual training is provided to all staff on evacuation procedures in their particular type of operations, with regular updates, and in case of injury in such or such location these are the steps previewed by the procedure. Also, especially for forestry operations, there is always a mobile infirmary located where operations are taking place.

Second, there was a significant difference in the existence of functional local medical facilities (100% of certified, 38% of noncertified; $p < 0.05$). We found tangible differences between certified and noncertified FMUs in what can be accessed in case of injury, such as dedicated cars or trucks, mobile or satellite phones, and medicines available on site. Such means were by and large in better condition, more modern, and in larger quantity in the case of certified companies. The average number of staff served by medical personnel (doctors, nurses and other caregivers) was similar between certified and noncertified FMUs (80

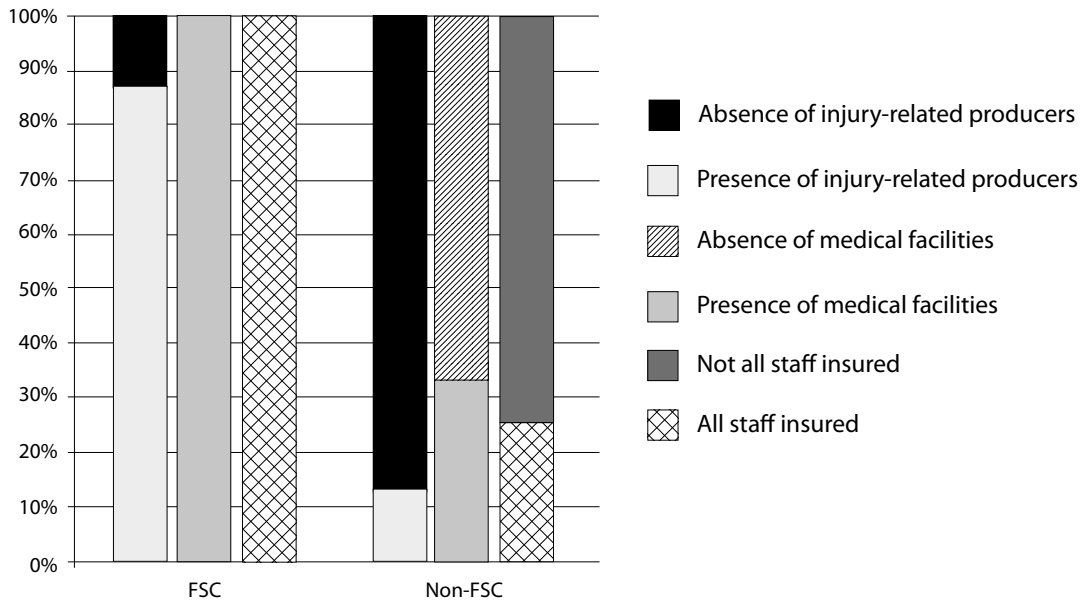


Figure 2. Health- and life-insurance coverage, health facilities, and injury-related procedures.

and 88, respectively). However, companies in certified FMUs employed more professional and permanent staff, e.g. doctors and nurses with national certifications or diplomas who are regularly available onsite, compared to a larger number of less formally trained caregivers in noncertified FMUs.

Third, there is a significant association between certification and whether health- and life-insurance coverage is available to all staff (100% of certified, 25% of noncertified; $p < 0.01$). Among companies with noncertified FMUs that do not cover all their workers (75%), the median percentage of covered workers is about 64%.¹¹ When all staff are covered, all associated costs are covered by companies in both groups. It is not uncommon for companies with certified FMUs to establish nondiscriminatory rules for the entire workforce, such as “100% coverage for an evacuation to X city with X means (car, train, airplane), with X costs covered to rent a hospital room, and X percentage of the salary paid for the period of recovery.” Conversely, in noncertified FMUs where not all staff are covered, uninsured injured workers are treated on a case-by-case basis, especially in terms of the duration of coverage and of the consequences for the worker’s eventual reintegration in the workforce.

¹¹ When the variance within groups was high, the median has been reported, to provide a better idea of the central tendency of the data.

During fieldwork, we did not directly experience such procedures being put into practice, but informal interviews with workers in certified FMUs suggested that they had been effectively implemented on several occasions.

Some inherent difficulties arise when companies operate close to an international border where migratory fluxes are common. At one noncertified site included in this study, many staff were unable to produce a national identification document, making it impossible for the company, despite its reported willingness, to enrol them in the national insurance schemes.

4.1.5 Workforce composition and contracting arrangements

Apart from the two companies that declined to participate, it was possible to collect demographic data on staff working at all certified sites and all but one noncertified site (Figure 3). Certified and noncertified companies employed about 3,770 and 1,545 staff, respectively. About 87% of workers in certified companies and 72% of workers in noncertified companies held a permanent contract. Many companies reported initially employing staff on a temporary basis, such as a probationary period of three or six months, before offering a permanent contract. In a few cases, companies reportedly willing to hire workers on a permanent basis faced the problem that they did not have the official

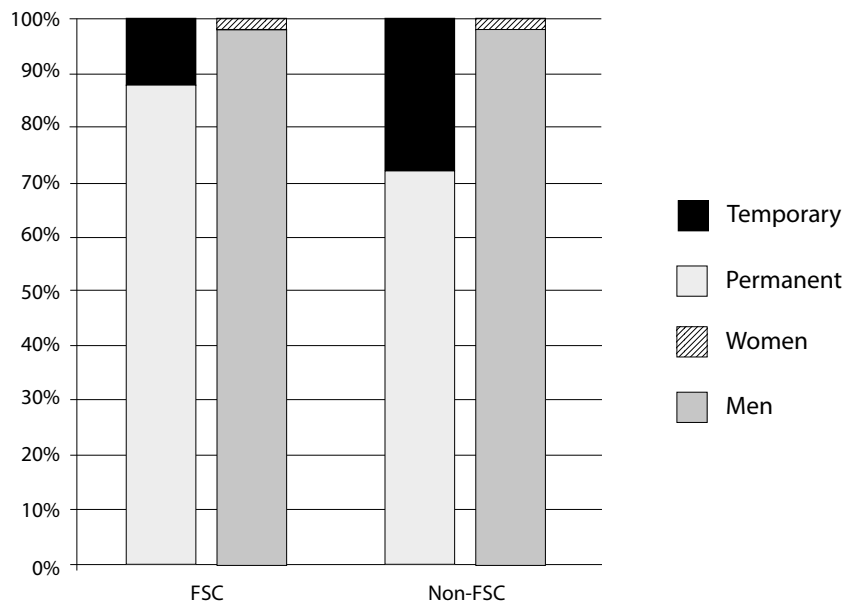


Figure 3. Composition of workforce.

identification document needed to be officially registered. As in the case of health insurance, this is not atypical in regions where the workforce moves across a border easily, but it does create a problem of legality for companies willing to hire them.

Neither certified nor noncertified companies had special contracting conditions for hiring or retaining young employees (no longer legally minors but still lacking work experience).¹² All companies would reportedly prefer to hire, train and retain young people with the necessary skills, but they do not have special recruitment policies in place. Nor do they find them when they actively look to fill special positions, such as those in forest management or on social teams. Informal discussions with several young and skilled staff in the field (i.e. young managers) with a university degree in environmental, forest, biological or social sciences in both certified and noncertified companies, seemed to indicate that they were all ready to move on to other jobs at the first propitious occasion. The main reason they gave for disaffection with their jobs was the difficulty of living in the remote areas where concessions are generally located.

Gender-disaggregated data showed a highly imbalanced workforce, with both certified and noncertified companies employing about 97% men. Most women employed by the study companies were cooks or housekeepers, but we did find (in certified companies) one sociologist and one chief of staff. As a comparison, recent data on gender ratios in forestry organizations in Europe report average employment of women at about 20% (Secco and Gatto 2012).

The percentage of workers from villages neighbouring the FMUs was about 58% in certified FMUs and about 45% in noncertified FMUs. Noncertified companies, however, kept less accurate data on the origins of their staff than certified companies. This means that, while most certified companies were able to provide details on origin at various scales (e.g. percentages from neighbouring villages or from the province, region or district), only a few noncertified companies were able to provide that level of detail, and in some cases they could only tell how many workers originated from the country in which they operated.

About 57% of certified and 25% of noncertified companies offered higher salary ranges than those indicated by the collective agreement for the forestry sector in each country. These differences are not statistically significant. Most companies

¹² The three study countries have ratified ILO Convention 138 (Minimum Age Convention, 1973), but have not integrated it into their national laws. Currently, the legal minimum age for employment is 14 years in Cameroon and Congo and 15 years in Gabon.

also have in place systems granting monetary premiums for production or for overtime. Informal discussions with staff of both groups indicated that the most frustrating trend in terms of rewards was not the salary per se, but the fact that incremental benefits, salary increases, promotions and so on are almost nonexistent, thus making it difficult even for the longest-serving workers to plan for a career path within the company. This could benefit from some attention from the FSC.

4.1.6 Housing and living conditions

In all cases where a *base vie* existed, certified and noncertified companies provided housing for part of their staff. Housing facilities were not provided to temporarily recruited workers (e.g. seasonal workers living in villages near the FMU). In such cases, companies provided transportation means or allowances. Houses were either made of timber (or what are commonly considered temporary materials) or bricks or concrete (durable materials). In several cases, they were made of a mix of materials, either on the same house (e.g. a timber structure on a concrete foundation) or in the *base vie* (a mix of new brick or concrete houses and older houses made with timber).

Overall, about 87% of *bases vie* featured houses with mixed or durable materials, while the latter were present in the *bases vie* of about 40% of

noncertified FMUs. Such differences directly affect living conditions, because houses built of durable materials are also generally provided with toilets, running water and showers.

A significant association existed between certification and whether companies adopted and implemented written procedures for house occupancy (88% of certified and 29% of noncertified; $p < 0.05$; Figure 4).

These rules were generally supervised by the human resources director; it is important to have transparent contracts with clear agreements about who has the right to occupy a house and the timeline for renting. Also important for living conditions, a significant association existed between certification and whether companies adopted and implemented clear written procedures for waste collection, treatment and disposal, and trained staff on such procedures (100% of certified companies, 20% of noncertified companies; $p < 0.01$).

Implementation of procedures for waste management could often be triangulated — by asking people about their satisfaction with the system, checking for bins around homes and larger waste-disposal and treatment areas, or observing machines in operation). Several different procedures existed in certified and noncertified

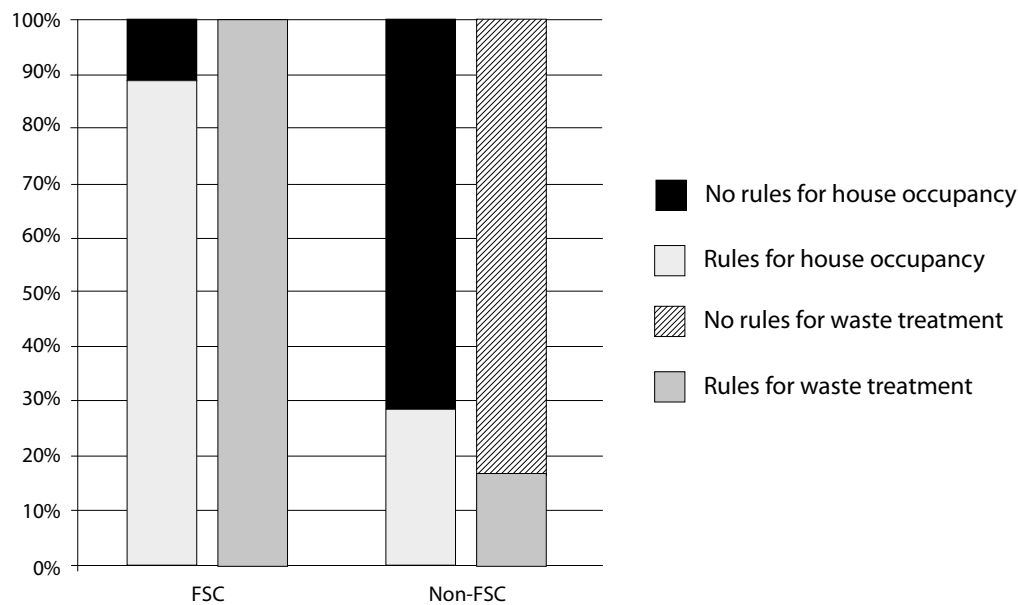


Figure 4. Rules for house occupancy and waste treatment.

sites. Some certified companies went a long way in ensuring a healthy living environment for workers (for instance by establishing contracts with professional waste-management companies or by enforcing clear rules about biodegradable vs. nonbiodegradable waste collection), while others limited themselves to providing a basic, albeit still very useful, road cleaning and waste disposal service. For instance, one non-certified company put in place a system of bins with different colours for different types of waste.

The 80% of noncertified companies without formal procedures in place used different approaches to waste disposal. One sent a truck each Sunday to remove waste (and we found evidence of that). Another provided bins and recommended that workers put their waste in them, but did not enforce this, resulting in a somewhat dirty and littered habitat. Another company did nothing at all about waste, and people simply disposed of it wherever they could.

4.1.7 Work-related associative bodies and rules for conflict prevention

Questions about the types of associative bodies (e.g. unions) within the company focused on their existence and methods. Overall, a significant association existed between certification and whether companies had one or more active and

officially recognized associative bodies with a mandate for collective bargaining with companies on issues including salaries and safety and health conditions (100% of certified and 25% of noncertified, $p < 0.01$; Figure 5).

In all cases where such associations exist, they were acknowledged and integrated into the companies' internal working procedures. They were structured to include one elected representative per category of staff (e.g. one representative for workers at the sawmill and one for those in forestry operations). All representatives regularly registered complaints and entered them in a *cahier des doléances* (logbook of complaints). Logbooks were then regularly (usually weekly or monthly) exchanged with company representatives, who could decide, together with staff representatives, to hold further discussions on specific complaints, especially if they referred to many individuals (i.e. if they were not personal, in which case the issues were generally discussed directly with the interested person).

In the 75% of noncertified companies that did not have such associations in place, complaints and issues were generally managed on a case-by-case basis, with great differences among companies. In one case, staff were not only employed by subcontracting companies (i.e. no direct link existed between the owner and operator of the

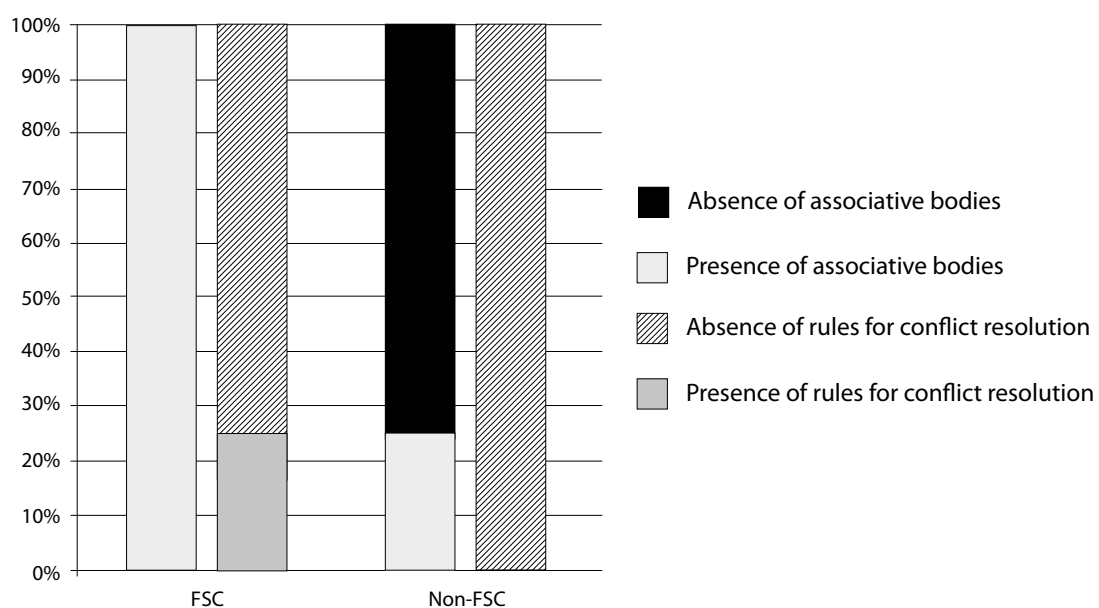


Figure 5. Active associative bodies and rules for workplace conflict resolution.

FMU and the people working in or around it), but were also prevented from establishing direct discussion with the company. This made for a striking difference from other noncertified FMUs where official associations did not exist but the companies had a long history of open and constructive discussions with staff. In two cases, the company and staff had already started negotiations for such associations to be created and registered.

Staff associations, when they existed, were integrated in the companies' internal procedures. Such procedures, negotiated with staff, clearly indicated how and when complaints should be submitted, the time of response by the company (varying with the nature of the conflict), and the responsibilities at each of those stages. Despite this consideration given to staff associations, only 25% of certified companies and no noncertified company had clear written procedures for resolution of conflicts between the staff association and the company.

We found no indication, in either certified or noncertified companies with active staff associations, of conflicts or complaints that could not be resolved with the use of the complaint logbooks. Staff in companies with no written conflict-resolution procedures did not seem to be less satisfied with the current system of conflict resolution than staff in companies with such procedures.

4.2 Institutions and benefit-sharing mechanisms

There is a major geographical shift between the previous section and this one. The previous section described working conditions in sawmills and in the forest, and living conditions in and around *bases vie*, which are often close to sawmills. This section focuses on villages inside or near FMUs, where we interviewed inhabitants about their interactions with companies.

Data discussed in this section were collected through 69 focus-group discussions (with villagers near 34 certified and 35 noncertified FMUs), 36 one-to-one interviews with various organizations' internal (e.g. the president) and external (e.g. state officials) members, and 50 social transects. As was true for the previous section, information collected through many informal and unstructured

interviews was used to triangulate data collected through formal interviews.

Overall, the total population of the 69 sampled villages was 44,200, about equally split between certified and noncertified FMUs. Median population per village was 280 in certified FMUs and 200 in noncertified FMUs. The number of villages in or around FMUs was similar for certified (average 26, minimum 4, maximum 85) and noncertified FMUs (average 24, minimum 4, maximum 57), as was the average number of local non-forest-related institutions (about 2 per village in both categories), overwhelmingly represented by agriculture-related groups dating back a few decades. Many ethnic groups were identified during interviews, including Baka and Benzele indigenous groups.

In theory, institutions and benefit-sharing mechanisms could be seen as two separate issues, as both the law and certification suggest the creation of institutions to prevent and resolve conflicts, and the implementation of benefit-sharing mechanisms to improve livelihoods. In practice, however, since a major source of tension in rural areas is the money redistributed by the state and the companies, many institutions originally created to prevent and resolve conflicts have also been used to manage benefit-sharing mechanisms. Hence, they are treated together.

Given the relatively short time since many such institutions and mechanisms were set up (both in certified FMUs through certification and in noncertified FMUs through the legal framework), it is still premature to gauge whether long-term positive impacts on the local economy have materialized or will materialize. Also, the attribution issue will not be easy to disentangle, given the array of interventions in and around FMUs. Nonetheless, we argue that solid institutions, initial experiences of implementation, and preliminary impacts are worth assessing. These may not only clarify current differences between certified and noncertified FMUs but also provide useful advice on how both processes (legal and voluntary) could be steered for better impacts.

Hence, this section focuses on the existence, functioning and preliminary impacts of benefit-sharing mechanisms and the institutions created to manage them. These are intended as one of the possible enabling conditions for local economic

development. A first set of conditions or variables focuses on the institutions and their governance, while a second focuses on existing benefit-sharing mechanisms.

4.2.1 Local awareness

Histories of social interactions that may lead to the creation and maintenance of inclusive local institutions or benefit-sharing mechanisms take time to be clarified. One necessary step to understanding those histories was to assess people's level of knowledge about the status of the FMUs near their villages, i.e. whether they knew that the FMU was being harvested by the company according to an official document or procedure that gave people rights (e.g. redistribution of tax funds) and obligations (e.g. restrictions on land use).

In all certified and 56% of noncertified FMUs, focus group participants said they were aware that forestry operations in their surroundings were regulated by official documents (e.g. an annual logging permit or management plan). In 44% of noncertified FMUs, people said they were unaware of the status of the FMU and the legal basis for the company's operations. Although there were contacts between these companies and the population, the contacts were not usually in the form of a company-sponsored information and awareness campaign on the setting up of institutions or benefit-sharing schemes.

In the case of certified FMUs, about 80% of the interviewees also said they knew about the certification of the FMU. When asked how relations between the village and the logging company had changed since certification, about 54% declared the situation improved, while the rest said relations were unchanged and were equally split between describing them as satisfactory and as unsatisfactory as before certification. Those who said relations had improved attributed the improvement largely to clearer rules, more consideration, more meetings, more consultation and better and more regular information on the company's activities. Dissatisfaction with current and past relations occurred in part because of unfulfilled expectations (i.e. village requests to the company that had not yet been fulfilled), and in part because people would prefer to go back to a system in which the company directly provided monetary or in-kind benefits to them, which some

certified companies in fact did, through private schemes, which are discussed in more detail below.

4.2.2 Institutions

None of the social criteria assessed by this study, and particularly those assessed in this section, can be considered in a historical vacuum. They must be situated along a continuum from indigenous institutions, to the initial contact between companies and neighbouring villages to explain their presence there, to a formal introduction to the customary users of the land, to negotiations on various written and unwritten agreements. In more recent times, this continuum has come to include the setting up of institutions for the implementation of negotiated agreements. In some cases, more modern institutions may have superseded pre-existing indigenous ones. An in-depth assessment of this issue was outside the scope of this study. We did, however, ask what types of institutions existed before the logging-induced ones were established. In most cases, answers indicated that agricultural institutions had been present in many villages before the logging-related ones.

The median period of contact between study villages and the first (not necessarily the current) industrial company was about 20 years in certified FMUs and about 27 years in noncertified FMUs (Figure 6). The median number of years of contact with the current company is about 18 years in certified FMUs and seven years in noncertified FMUs, with no significant differences among villages sampled during pre-harvesting, harvesting or post-harvesting phases. In general, certified companies had a longer history of contact with neighbouring villages than noncertified companies.

When all sampled villages were considered ($N = 69$), a significant association was found between certification and whether an institution was in place (69% of certified villages, 31% of noncertified villages; $p < 0.005$; $\chi^2 [1] = 9.66$). When an institution was in place, it was also active (i.e. was registered and had held regular meetings in recent years) in 96% of villages in certified FMUs and 73% of villages in noncertified FMUs.

When only villages with active institutions were considered, results indicated similar median periods of contact. All noncertified FMUs with active institutions had an approved management plan and third-party-audited chain of custody in

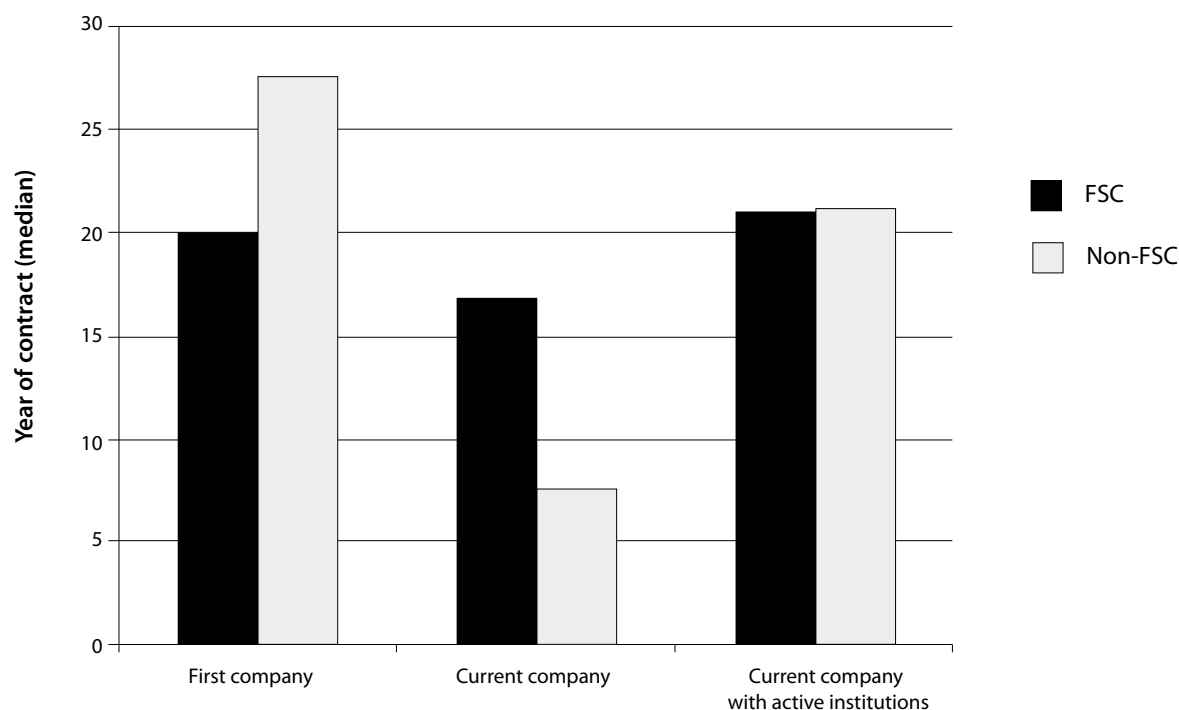


Figure 6. Length of contact between villages and companies.

place. In other words, social capital built through long and regular exchanges over the years and engagement with the principles of sustainable forest management might explain the presence of an active and functioning institution, more than the presence or absence of certification does.

A significant association also exists between certification and whether active institutions were established by the current company (63% of active institutions in certified vs. 20% in noncertified FMUs; $p < 0.05$; $\chi^2 [1] = 5.10$). So, social capital and engagement in sustainable management might explain the presence of an active institution, but the efforts required to get certified (including preliminary steps made by companies toward certification, such as adopting a chain of custody) might also make companies more proactive in pushing for the establishment and maintenance of those institutions. Indeed, active institutions in certified FMUs were established on average 1.5–2 years before the granting of the certificate, while in noncertified FMUs they were voluntarily established on average 6 months to 1 year before the first validation of their third-party-audited chain of custody.

When not established by, or with the help of, logging companies, institutions in both

certified and noncertified villages were set up by the national or local representatives of the Ministry of Forests or, in a few cases, by the population itself. In the latter cases, current institutions are the newly created “forest branch” of existing institutions established for other purposes, generally with a long history (up to two decades) of local social actions, notably in the agricultural sector.

Institutions that were not established by logging companies in certified FMUs (37%) were more active, more effective and better managed than those in noncertified FMUs (80%). This may be because certified companies supported the institution whether or not they helped establish it (the reported target was smooth, long-term social appeasement over the entire FMU), while in noncertified FMUs, most logging companies were more interested in institutions established by them, normally in areas where forestry operations were ongoing (the reported target was smooth, short-term social appeasement in annual cutting areas).

4.2.3 Governance of active institutions

Several variables were assessed to check how actively institutions were governed (Figure 7). First, we checked whether the institution was governed through written and officially approved

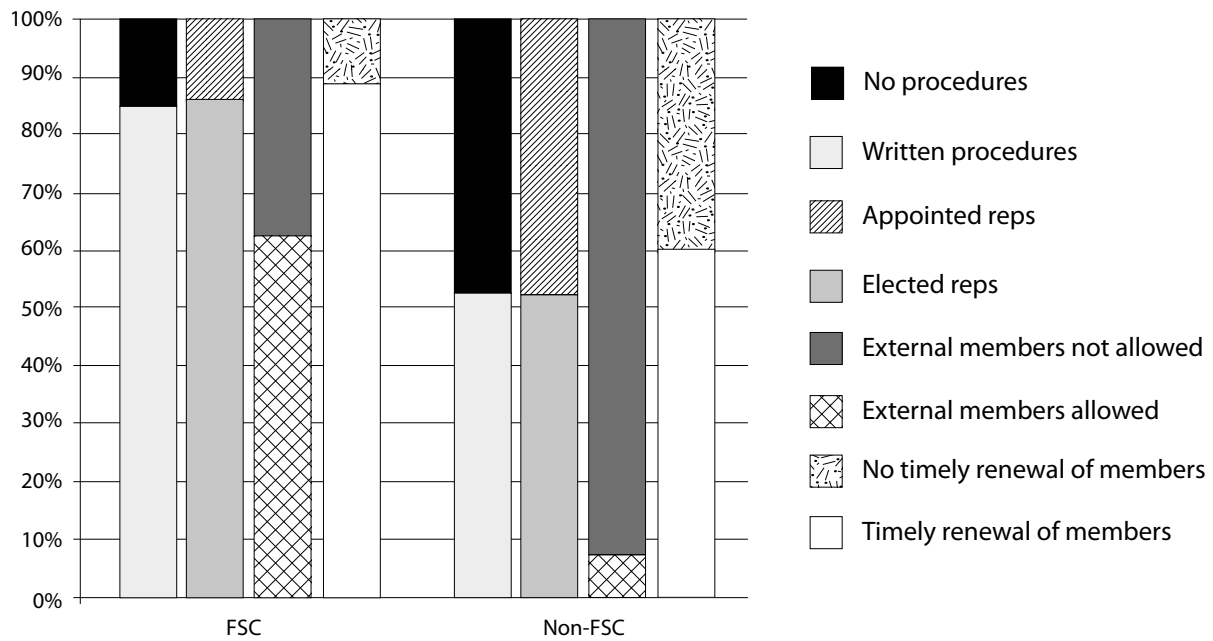


Figure 7. Governance of active institutions.

procedures (e.g. a statute). Results indicated a significant association between certification and the existence of written procedures (85% in certified, 53% in noncertified FMUs; $p < 0.05$; $\chi^2 [1] = 4.21$).

Second, we checked how members of the institution (both the president and rank-and-file members) were chosen (elected or appointed) and whether external members were allowed to participate in consultations and deliberations. The rationale for the assessment of these variables was that (1) elected members were more likely to represent different lineages and (2) the participation of external members (such as national or international NGOs) could encourage more transparent and technically sound decisions in the adoption and implementation of projects. Both variables showed significant differences between certified and noncertified FMUs (for election, 86% in certified vs. 53% in noncertified FMUs; $p < 0.05$; $\chi^2 [1] = 5.29$; for external members 63% in certified vs. 7% in noncertified FMUs; $p < 0.001$; $\chi^2 [1] = 10.59$), with elections and openness to external members occurring in the majority of certified FMUs. External members were in general decentralized state officials, mayors, non-forest-related administrators, and members of local NGOs.

Lastly, we checked whether several written rules were indeed implemented in the daily operations of the institution. Periodic renewal of memberships — which could better guarantee that all lineages and members of the population are represented in the committees — was a common rule in both certified and noncertified FMUs. There was, however, a significant association between certification and whether the rule was enforced (89% in certified vs. 60% in noncertified, $p < 0.01$; $\chi^2 [1] = 6.63$).

In general, prior to making a final decision, all members were consulted in 88% of the institutions in certified FMUs vs. 67% in noncertified FMUs. Minutes of the meetings that occurred in 2012 and 2013 were provided in all cases in certified FMUs and in 67% of noncertified FMUs. The presence of minutes is important because 75% of institutions in certified FMUs also had mechanisms in place to record and address complaints raised by members and nonmembers, vs. about 33% in noncertified contexts. (Complaints raised through institutions are different from those discussed above in the case of working relations between staff and companies.) When minutes are lacking, people cannot refer to officially recorded points of discussion to check the status of their complaint (e.g. actions taken by the company).

4.2.4 Mechanisms for compensation

In the event of loss or damage affecting the property, resources, health or livelihoods of local populations neighbouring FMUs, companies are held responsible and complaints are addressed to them. Situations differ considerably on the ground, and depend on factors such as the following:

- the history of the FMU (e.g. a company may have only recently acquired a concession that was previously harvested by other companies that had tense relations with the local population), and the colonial legacy (notably in Cameroon with both British and French influences)
- location (some FMUs are so remote that the only villages concerned are those created by the company itself, which produce fewer occasions for conflict)
- the structure of the company (e.g. several companies are very centralized and decisions about compensation may take a long time, creating further local tensions).

Overall, a significant association existed between certification and whether companies adopted and implemented mechanisms for the compensation of damages (100% of certified and 25% of noncertified FMUs; $p < 0.01$). In most cases, the institutions set up to bridge relations between the local population and the company comprised a key mechanism (see below). Damage-related conflicts were either discussed and mediated within such institutions or reported directly to the state administration. Most often, it was a combination of the two, with state officials intervening in the discussions and mediating sessions between the local population and the company. A typical case would include the establishment of an ad hoc commission, chaired by the closest representative of the state administration (e.g. *chef de brigade* or *sous-préfet*). The commission evaluated the losses or damages, and then it discussed the matter with the company until an agreement was reached. However, cases also existed in which bilateral negotiations were preferred, notably between farmers and logging companies when agricultural fields were inside the FMUs.

In all certified and noncertified cases reviewed for this study, compensation was monetary, generally with the company disbursing the agreed amounts to the commission in the presence of state officials. The importance of existing procedures

was highlighted by several complaints raised by interviewees about cases in which disbursements occurred in opaque ways (e.g. people complained because they thought state officials negotiated the amounts of compensation directly with the company, allegedly accepting bribes in the process, so that the final compensation to the population was lower than it could have been). Also, procedures with agreed (and written) values for compensation are important because official compensations (legally applied by state officials) are generally based on very old regulations, and thus much lower than the current values of the resources that incurred damage.

4.2.5 Benefit-sharing mechanisms

In addition to managing daily relations among companies, citizens, and state officials, interviewees said the most important task of existing institutions was to regulate and manage funds that logging companies provided to neighbouring villages to improve local livelihoods and foster local development. In the common language established by the current legal frameworks, these funds and their management constituted benefit-sharing mechanisms (Figure 8). As explained above, we will refer here only to private mechanisms and not to public schemes such as the *redevances* — keeping in mind the caveats discussed earlier about the blurred boundaries between public and private schemes.

A significant association existed between certification and whether companies would adopt private benefit-sharing schemes in addition to those legally mandated by the regulatory framework (100% of certified and 44% of noncertified, $p < 0.05$).

The existence of such schemes was acknowledged in interviews with institutional representatives and the local population, who expressed various degrees of satisfaction with their effectiveness and the equity of disbursement.

In general, the objectives of institutions and people representing them in certified vs. noncertified FMUs reflected a long- vs. short-term vision. This difference also led to different institutional settings for benefit-sharing mechanisms. Companies with certified FMUs tended to group villages to create joint or embedded (Ostrom 1990) institutions, irrespective of the harvesting stage. This was for

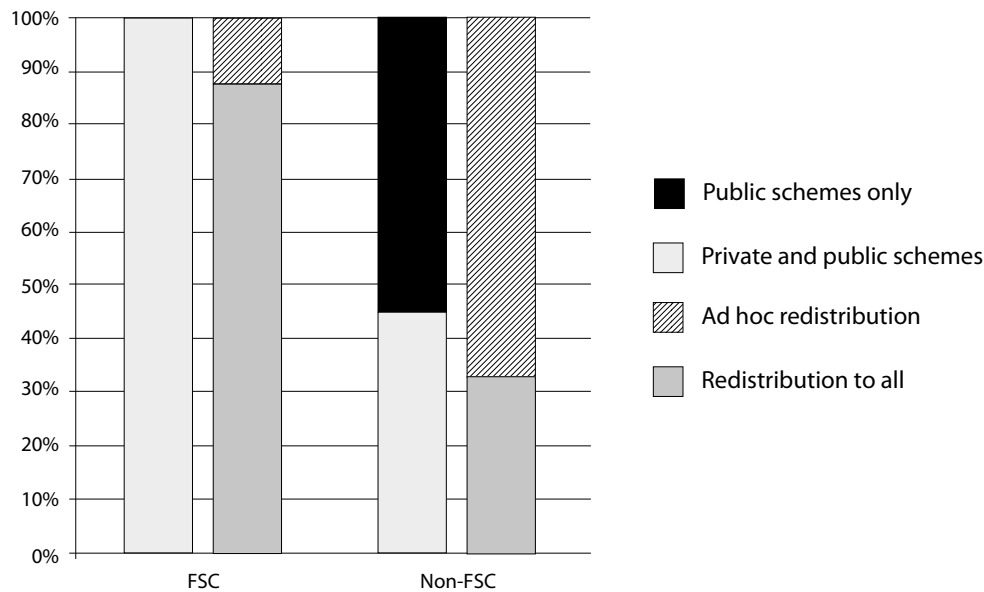


Figure 8. Private benefit-sharing and redistribution schemes.

financial reasons, mainly to minimize transaction costs, because companies generally sustained the costs of keeping a regular communication channel open with all villages, not only those neighbouring annual allowable cuts. Grouping was also done under the assumption that the problems were relatively homogeneous for neighbouring villages. Also, groups of villages received larger amounts of money that could fund bigger projects.

So, for instance, an average certified FMU with 30 villages would theoretically have 30 permanent smaller institutions (one per village, four or five members only per institution), which would meet and deliberate (on needs, complaints and projects to propose annually to the company for funding). Deliberations would then be further discussed by one or two members per village in a larger joint institution (with members from, say, 10 villages). Both types of institutions would normally receive annual funds from logging companies that cover the costs of meetings, elections and similar expenses. In addition, joint institutions would be allocated funds to pay for the implementation of selected development projects.

In the same theoretical scenario, an average noncertified FMU would rather set up institutions in one or more of the 30 villages, where operations are ongoing, and provide funds to pay for projects in those villages. Once operations move to another

area, the institution and the projects would receive much less attention and no further funds.

Quantitatively, such differences were exemplified by a significant association between certification and companies adopting benefit-sharing schemes inclusive of all neighbouring villages, instead of including only the villages where current operations were underway (89% in certified and 33% in noncertified; $p < 0.05$).

In other words, noncertified companies tended to maintain relations and adopt redistributive schemes only on an ad hoc and temporary basis, while certified companies disbursed money on a regular basis to all managing institutions. The disbursement schedule varied. While joint institutions tended to receive larger amounts every two to three years, single-village institutions tended to receive smaller amounts each year. Yet in both cases, members could plan ahead for the preparation and implementation of development projects because amounts were known and regularly disbursed.

Overall, benefit-sharing schemes were well perceived by the population. There had, however, been several complaints about insufficient funding, or favouritism in projects' selection (e.g. the mayor's village receiving more money than other villages), or failure to maintain agreements,

especially regarding promises made in contracts (*cahiers des charges*). In general, active institutions were perceived as a fair venue for such complaints to be aired and resolved. However, in some cases, we recorded complaints that elites or individuals within the institutions had diverted projects to their personal advantage (e.g. a plantation on their customary land). This may be considered a negative impact of benefit-sharing schemes, although it is not peculiar to private schemes or to logging-related institutions.

Another possible negative impact of private schemes is a kind of regression to the past in which local people, given the ineffectiveness of public schemes, look to the local logging company for all their daily needs, thus rendering the role of the state superfluous. Such issues were not aired during interviews, but they will nonetheless receive further attention in the Discussion section below.

4.2.6 Redistributed amounts

Redistributed amounts varied and were either calculated on a fixed rate multiplied each year by the number of cubic meters produced by the company, or, more often, based on lump sums agreed upon with representative institutions. In the case of one company with a certified FMU, the amount is estimated on the basis of the size of the customary area of each village included into the FMU. Although it was relatively easy to discuss with companies the types of redistributive schemes adopted, the collection of reliable data on redistributed amounts was far more difficult.

This is partly because some companies had more than one scheme in place (e.g. *cahier des charges*, money from cubic meters harvested, lump sums or in-kind agreements), and partly because financial data remain a very sensitive issue not easily shared outside or even within the company. Data received from four companies with certified FMUs in two countries indicated an average amount distributed of about €55,000 per company per annum. These amounts are of course in addition to those paid into public schemes. On a per capita basis, this would be an average of €56 per person per year (median €43), a significant amount in countries such as Cameroon, where about half the rural population lives on about €350 per annum (INS 2002).

The money for private schemes comes from the companies' coffers. Some certified and noncertified

groups with active schemes were able to provide documents showing that they sold timber scraps or sawdust to the local population, and the money collected through those sales was then reinvested into the annual budget for local institutions to cover the implementation of projects. Companies with noncertified FMUs, however, were unable or unwilling to provide details on the annual amounts redistributed.

In addition to funding projects, certified companies also sometimes funded meetings and other official procedures such as elections of members and consultations with state officials. Meetings may be regular or exceptional — called by either the company or the local institution, for instance to resolve an unexpected conflict. One of the most recurrent complaints raised by members was that they were not paid for all the time they spend managing the institution.

Apart from the direct benefits derived from redistributed money, few other types of economic benefits other than employment seemed to exist. Some benefits may have stemmed from the activities that people living in neighbouring villages could carry out with the equipment bought through funded development projects, such as sugar-cane presses, manioc grinders or brick makers. Such equipment was put to use by providing a service to the village, and in some cases that service generated money that was then reinvested in development activities.

We did not find any relevant difference between certified and noncertified FMUs in terms of number or types of machines bought with redistributed money. Over the long term, however, institutions receiving regular funds (i.e. those in FSC-certified FMUs) could plan to invest in the maintenance of those machines, if they so wished. In most noncertified locales, this was less likely to happen because funds were not disbursed on a regular basis. Indeed, the most frequent complaint about machines in noncertified FMUs was the lack of funds for maintenance.

4.2.7 Other benefits

Education opportunities in villages neighbouring FMUs were provided in addition to services normally provided by schools run by the state and/or religious orders. It was difficult to compare education opportunities in the FMUs of different companies because the history of a certain village,

as well as its location (distance from a city where state-run services normally exist) and national differences (e.g. in the availability of scholarships) had a strong influence on the educational demands that might be placed on a company.

When assessed one by one, the above variables did not result in a statistically significant difference between certified and noncertified FMUs. However, when a composite index was created that measured the presence of any one type of opportunity vs. the absence of all opportunities, data indicated that 78% of certified and 33% of noncertified companies provided some educational incentives. These included infrastructure (e.g. schools, classrooms and benches) built or renovated with money provided by the company to local institutions. Another common form of support, the least expensive for any company, was annual cash advances to staff for the costs incurred at the beginning of the year to enrol children and buy educational materials (*credit scolaire*). All staff interviewed confirmed the existence of this support, but we could not check whether money had been used to that goal. About 38% of certified and 13% of noncertified companies covered all school fees for the children of staff, while 29% of certified and 33% of noncertified companies covered the salary of teachers in local schools. These latter data were corroborated by interviewed staff.

Another benefit provided by logging companies is infrastructural improvements that can range from short- to long-term. Both certified and noncertified companies provided road construction and maintenance, which included opening or rehabilitation of lower-quality access paths.

We did not find significant differences between companies with both certified and noncertified FMUs on road construction. The length and the quality of the roads built by each company were more a function of the concession's position than of the presence or absence of certification. Ultimately, companies need to reach and safely transport timber, and they need to have roads that last at least for the entire harvesting season under the weight of heavy vehicles. Road quality is also of the utmost importance to the local population (Tiani et al. 2005), and indeed several logging companies rented out their machines to local councils or governments for annual road maintenance. In no case, however, were such roads

permanent, and respiratory diseases caused by dust remained common, as the majority of villages are placed along those roads.

Also, several villages (similar percentages for certified and noncertified FMUs) either received power generators from logging companies or bought them with funds from a development project.¹³ In those cases, the trend was for noncertified companies to provide monthly supplies of fuel for the generator (although interviewees reported that these were often insufficient). Certified companies, on the other hand, prefer institutions to fuel and maintain the generators using the money they pay them annually. Planning of fuel consumption did not seem to be effective in either case, and generators were often unusable for long periods.

4.2.8 Cultural assets

Cultural assets provided by the logging companies were largely limited to community halls (*foyers*) equipped with satellite television, speakers, a generator and chairs and tables. Many of these were in *bases vie*. Others were built in the villages with money from private and public benefit-sharing mechanisms and could be used by the entire population. Benefit-sharing funds were also spent in these communities on new material (e.g. generators) and maintenance.

A significant association existed between certification and the presence of equipped and well maintained *foyers* (85% of certified villages vs. 36% of noncertified villages; $p < 0.001$; $\chi^2 [1] = 12.64$). Around one certified FMU, the company had also contributed to the construction and maintenance of a place of worship.

4.3 Customary uses

Data presented in this section were collected during 69 focus-group discussions and 259 one-to-one interviews with people identified in focus groups as resources on issues concerning agriculture, hunting and NTFP gathering.

¹³ Some populations have received both project funds and a generator from the logging company, but we were unable to disentangle the two sources during interviews. Some people referred to a logging company as a donor even when there were clear indications that the equipment in question was bought through a project.

Questions were asked about each activity and its interactions with the practices of the local logging company. We also asked whether procedures existed to protect sacred sites, and if so, whether they were effectively implemented.

In the three study countries, local uses of forest resources in FMUs are officially recognized, but this recognition has limitations. First, the forest is the property of the state, and customary rules and ownership have no legal recognition. When an FMU is granted by the state to a private company for logging, the company must accommodate local uses as long as they do not oppose existing laws. Except for fields predating the establishment of the FMU, agriculture is prohibited inside the FMU (except in Congo, where a company can create a Community Development Area). NTFPs and bushmeat may be collected, but only for subsistence purposes. Logging companies are expected to both enforce national regulations and propose formal or informal compensation when local people lose some or all of their use rights inside the FMU. In Cameroon (Lescuyer 2007), FMU boundaries were delineated by the state with very little regard to customary uses. Since changing an FMU boundary is a legally complex process, managing conflicting forest uses is mainly incumbent on logging companies.

4.3.1 Agriculture

No significant association existed between certification and whether or not farmers practiced shifting cultivation on customary land inside the FMUs (44% of certified and 33% of noncertified FMUs; Figure 9). The penetration of shifting cultivation into the FMU mainly depends on (1) the distance between the village and the FMU's boundaries, (2) the population density and (3) the existence of trails or roads entering the FMU. In other words, the presence of shifting cultivation inside certified FMUs did not seem to prevent FSC certification from being granted. Similarly, the presence of shifting cultivation in noncertified FMUs did not seem to be challenged by the government. In both cases, however, such use is prohibited by law.

The presence of agricultural fields inside a certified FMU is frequently discussed in local committee meetings. It is especially relevant in FMUs with high population density or with a relatively

large urban centre nearby. We found no case of concession boundaries having been modified in response to people's perceptions that the FMU infringed on their land. In some cases, however, companies with certified FMUs had initiated a legal procedure to return part of the land to state control so that people can practice shifting cultivation on it. This approach was, however, negatively perceived and often resisted by both state officials and the local population. A reduction in FMU area means a reduction of the annual area fee that a company has to pay and thus a reduction in payments through public benefit-sharing schemes. As a result, state officials preferred to tolerate the practice of shifting cultivation inside FMUs, even though it is against the law.

There was no significant association between certification and whether people perceived the presence of the FMU as a constraint to shifting cultivation (43% of certified and 14% of noncertified FMUs). The higher values registered in certified FMUs might indicate that certified companies more effectively enforce the legal prohibition of shifting cultivation inside FMUs than noncertified companies do. About 83% of the villages in certified FMUs complained of having to deal with new rules since certification. In comparison, people living in villages neighbouring a noncertified FMU who were aware of the FMU's status said they had not had to deal with any new rules in recent years. In such cases, logging companies tolerated shifting cultivation inside the FMU probably because of the financial and social costs of tackling the issue, as well as the possibility that there may not be many valuable trees in such areas.

Interviewees said that in several cases new rules in certified FMUs (mostly limits on access and practice) were not negatively perceived by the local population, possibly because of prior consultations. While limiting shifting cultivation in the FMUs was considered by local people as an attack on customary land use rules, companies with certified FMUs had developed several compensatory measures that palliated such feelings and addressed local needs. In some cases, for instance, companies made funds and technical support available, notably through private benefit-sharing mechanisms, for intensive agriculture (e.g. agroforestry initiatives) outside FMU boundaries.

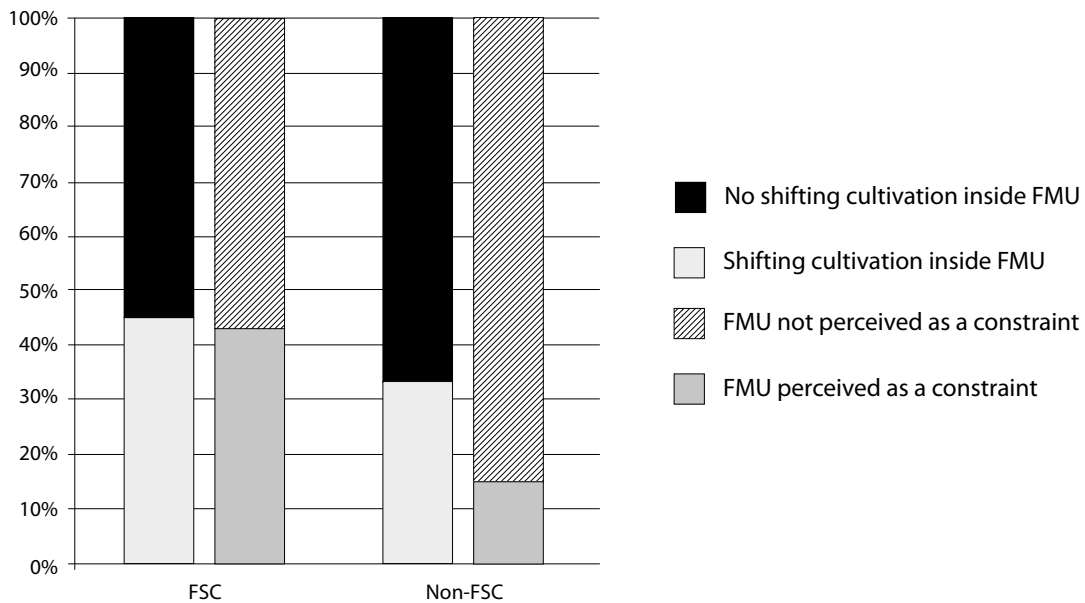


Figure 9. FMUs and shifting cultivation.

Results indicate that new rules were respected in 75% of villages around certified FMUs. This might be related to the better knowledge that people around certified FMUs had about the FMU's status. Study participants indicated that company staff in certified FMUs often held lengthy discussions with neighbouring villages during the pre-harvest inventory. During such discussions, boundaries were defined for the next annual allowable cut and for pre-existing (and thus legally still authorized) agricultural areas. Consensus reached during such discussions might help increase respect for the rules, as long as no major issues remain about the agricultural space needed by the community. Study participants from some villages neighbouring certified FMUs said that such discussions had been held with the company but that a negotiated solution had not yet been reached, and they were unwilling to respect the current boundaries.

When consensus is reached, maps are normally drawn, agreed upon and signed by representatives of the company, the villages and the state. In those cases, encroachments are more easily detected.

4.3.2 Hunting

No significant association existed between certification and whether or not hunting was practiced inside the FMUs (89% of certified and

100% of noncertified FMUs, Figure 10). Hunting was practiced in almost all FMUs, irrespective of certification or approved management plans or any other regulation — for example, regulations prohibiting hunting with noncustomary means or limiting it to subsistence consumption.

Differences existed in hunting related to the period of harvesting. While all study villages, near both certified and noncertified FMUs, practiced hunting while harvesting was ongoing, only 60% of villages had active hunting operations during pre- and post-harvest periods. Also, while people in all villages with harvesting ongoing perceived logging as an opportunity for hunting, it was considered an opportunity by only 40% of villages in the pre-harvest period and 25% of villages in the post-harvest period. These numbers might reflect the fact that logging creates new access to the forest and gives more people the means to buy bushmeat, making hunting more profitable. When logging ends and roads are closed, as required by the law and certification, local people no longer perceive logging as an opportunity.

There was no significant association between certification and whether or not people perceived the presence of the FMU as a constraint to hunting as they practiced it pre-FMU, although this held true for more people near certified FMUs (83%

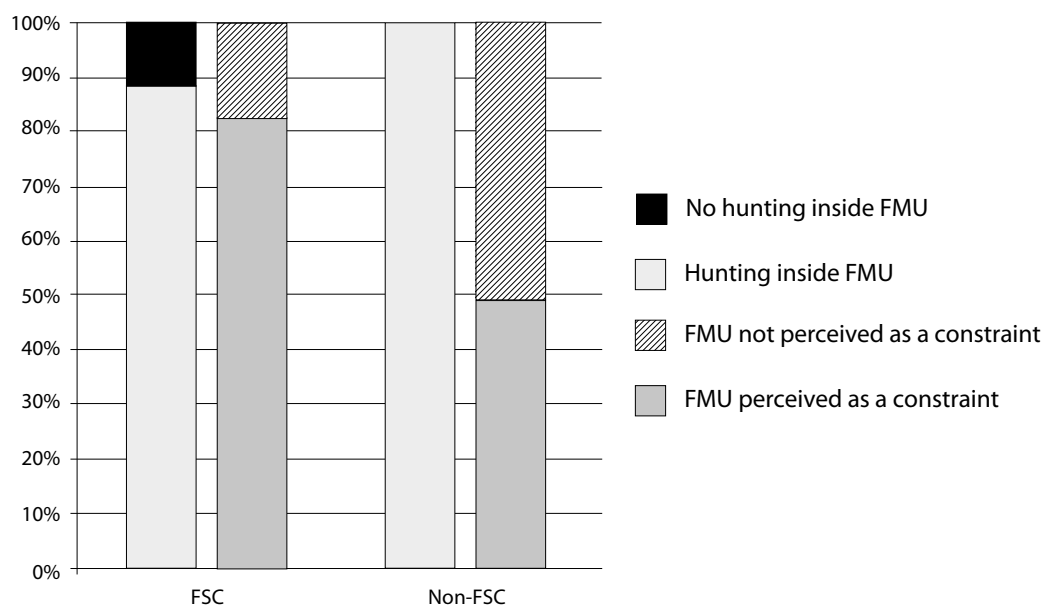


Figure 10. FMUs and hunting.

of certified and 50% of noncertified FMUs). As in the case of agriculture, the higher numbers for certified FMUs might indicate more enforcement there; about 75% of participants from villages near certified FMUs reported having to deal with new rules since certification.

Local people's perception of unfairness in new rules might stem from the fact that logging companies are often unable to distinguish between customary and noncustomary hunting practices, especially before they are carried out. Hence, companies, especially those with certified FMUs, tend to apply the same rules to all hunting; this often infringes on legal rights to customary and subsistence hunting (e.g. Tiani et al. 2005). However, unlike in the case of agricultural practices, neither certified nor noncertified companies had been able to propose and implement satisfactory measures to compensate local hunters for the perceived loss of rights or increased pressure. Similarly, no logging company in the sample relies on customary hunting to supply workers and their families with bushmeat, in order to avoid any incentive to increase hunting pressure.

All in all, hunting rules were perceived as ineffective; local people considered them unfair, law enforcement was weak and logging companies were not equipped to take on the enforcement role. The severity of the problem

differed between FMUs because of variables such as distance from roads, remoteness, distance to towns where bushmeat can be easily sold, and presence of the most-hunted species. But where the hunting pressure was severe, certification did not seem to make a difference. Companies were overwhelmed by the number of hunters entering the FMUs, night and day, often for days in a row with sophisticated tactics such as engaging the companies' control teams in one area while other members of the hunting team enter the FMU from other locations.

4.3.3 Gathering of non-timber forest products

No significant association existed between certification and whether or not NTFP gathering was practiced inside the FMUs, although less NTFP gathering was found in certified FMUs (67% of certified and 100% of noncertified FMUs; Figure 11).

Very few villages near certified FMUs (17%) and none of those near noncertified FMUs perceived the presence of the FMU as a constraint (Figure 11). The perceived constraint in some villages related to potential conflicts of use for certain timber species, like moabi (*Baillonella toxisperma*) and sapelli (*Entandrophragma cylindricum*), which are harvested by companies but also provide important dietary and cultural

NTFPs. About 38% of villages around certified FMUs were dealing with new rules that applied to this activity. New rules aimed at facilitating NTFP processing and trade by local people and were much less focused on regulating access rights; access to NTFPs was governed by customary rules both in and outside the FMUs and was almost never controlled by the logging companies. No effort to promote NTFPs was found around noncertified FMUs.

However, the promotion of initiatives supporting NTFP harvesting, transformation and trade by companies with certified FMUs, although well intentioned, is generally done with little regard on the impact on customary rules, which sometimes creates internal conflicts within communities, especially when this activity generates substantial incomes (Lescuyer 1996). Yet, it is infrequent that these conflicts are debated in the official local institutions: they are usually solved at the village or family level through informal customary negotiations. Similarly, potential conflicts on a few timber species of interest for both the logging company and local population are often underestimated when rules are adopted, and would require more efforts on the part of the companies to try and better understand the situation before adopting new rules.

Nonetheless, new rules are generally accepted and positively perceived in most villages around certified FMUs, probably because they do not really infringe on local and customary practices and because they support the development of the sector.

4.3.4 Sacred sites

Residents of communities near both certified and noncertified FMUs reported that they had never seen official documents such as management plans, maps or high-conservation value reports listing their sacred sites. However, in villages neighbouring certified FMUs, some individuals were hired at the beginning of each year to locate and visit the village's sacred sites in the presence of a few company employees. Those sites were then reported on a map that was used to exploit the annual harvesting area.

In 50% of the villages around certified FMUs, people said they were satisfied with the companies' efforts to protect such sites, while villagers near noncertified FMUs said they were completely dissatisfied. Reportedly, the latter made no efforts to respect such sites. The difficulty on this issue may stem from the fact that, when asked during interviews, local residents did not all have the same understanding of what a sacred site was or where

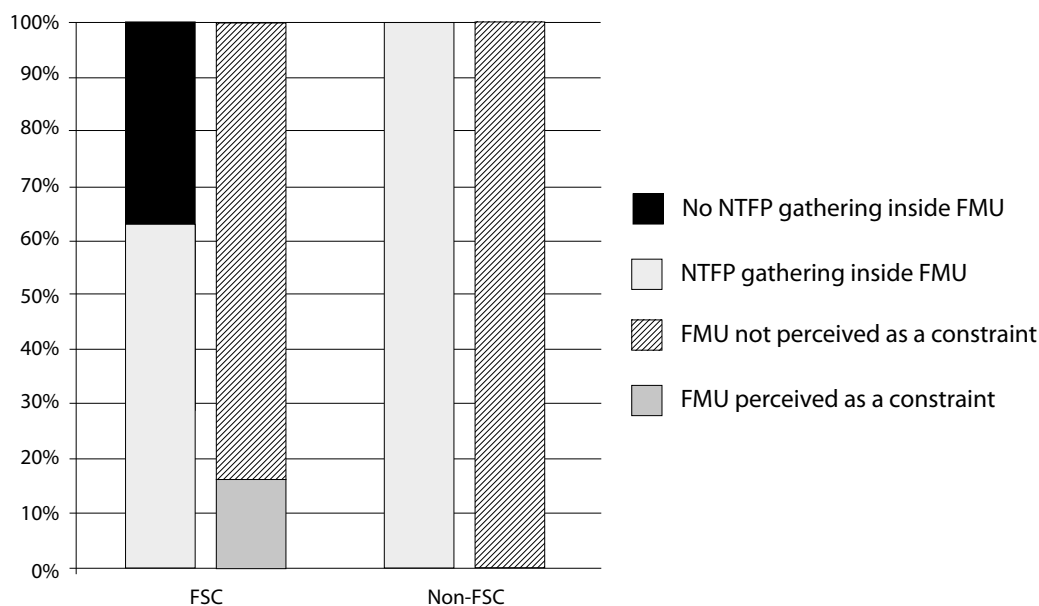


Figure 11. FMUs and gathering of non-timber forest products.

local sacred sites were located, as such sites could belong or be relevant only to particular lineages or groups. Because of this, conflicts could arise when a company started logging. This was sometimes true even when, as in the case of cultivated fields, maps were drawn with the local population during pre-harvesting inventories. Managers of certified FMUs complained that many conflicts on this

issue arose because, as one interviewee stated, “people make up sacred sites as soon as they hear the chainsaws . . . because they know that there is a compensation to negotiate.” Interviewees from the villages, on the other hand, made comments such as “the companies are often in a rush and have no time to stay long enough to record all the sacred sites.”

5 Discussion and recommendations

Both quantitatively and qualitatively, major differences were found between the certified and noncertified FMUs in the study — as well as within the groups, in some variables more than in others, often with large spans between the best and the worst performers in noncertified FMUs. This is due to the fact that, in the non-certified group, there are companies which have already declared their willingness to become certified, for instance by already implementing a third-party audited chain-of-custody, and companies which do not yet have an officially approved management plan. Such differences in basic standards are not possible in the certified group.

On average, between the two groups, differences were relevant on many variables measured as proxies for the quality of working and living conditions in *bases vie* (hypothesis 1), and for the quality, legitimacy and effectiveness of institutions and benefit-sharing mechanisms (hypothesis 2). Differences were more nuanced in the carrying out of customary practices, such as shifting cultivation, hunting and NTFP gathering (hypothesis 3). People were more aware that new rules applied in certified FMUs, but overall, daily activities were not much more affected than they were among people living near noncertified FMUs (Table 7).

Before discussing the broader picture that such results may suggest, let us discuss the three major sets of outcomes assessed — working and living conditions, institutions and benefit-sharing, and customary rights.

5.1 Working and living conditions

The presence of a certified FMU was consistently associated with better results on the 17 variables

assessed by the study that relate to working and living conditions (Figure 12).

Major differences were found in the existence and effective implementation of clear written procedures that regulate working and living conditions in the sawmills, during forestry operations, and in the *bases vie*. In *bases vie* near certified FMUs, study results indicated that the quality of life had improved since certification was granted. Essential services such as water supply and medical facilities were guaranteed; housing, electricity and waste management contributed to improved living conditions; and workers were more satisfied with prices and products available at the local minimarkets near certified FMUs.

Some variables, like health and life insurance and contractual agreements, are largely regulated by national laws. Although the timber company's respect for the law is surely one of the final buyers' basic expectations from certified timber, it is not to be taken for granted in countries where governance, notably in the forestry sector, is weak, and where existing laws are often inequitable, with the least powerful losing the most. The presence of capable and effective decentralised State officials, very much appreciated by companies' managers in both certified and non-certified FMUs, might surely influence results on such variables irrespective of certification. However, such occurrences have been listed by companies' managers, staff and the local populations as “exceptional” and normally “short-lived”, as State officials reportedly tend to change function and location quite often in all sampled countries.

Thus, such results provide evidence that, in some cases, certification serves as an incentive to comply with the law or even to help enforce the law. Yet it also raises questions about companies with

Table 7. Results of the study.

	Certified	Noncertified	Significance
Working and living conditions in sampled FMUs (N=8 per treatment, total 16)			
Presence of an <i>économat</i>	100%	100%	
Satisfaction with prices in <i>économats</i>	72%	48%	
Potable water	86%	67%	
Individual home showers and WC systems	100%	46%	$p < 0.001$
Provision of safety equipment	100%	75%	
Procedures to control and verify use of safety equipment	90%	25%	$p < 0.05$
Health and life insurance provided to all staff	100%	25%	$p < 0.01$
Local medical facilities	100%	38%	$p < 0.05$
Injury-related procedures	88%	12%	$p < 0.01$
Staff with permanent contracts	87%	72%	
Women as a percentage of total staff	3%	3%	
Salary range higher than national collective agreements	57%	25%	
Houses with durable materials in <i>bases vie</i>	87%	40%	
Written procedures for house occupancy	88%	29%	$p < 0.05$
Written procedures for waste collection and treatment	100%	20%	$p < 0.01$
Active associative bodies (e.g. unions)	100%	25%	$p < 0.01$
Written procedures for conflict resolution	25%	0%	
Institutions in sampled villages (N=34 in FSC, N=35 in non-FSC, total 69)			
Knowledge of FMU status	100%	56%	
Existing institutions	69%	31%	$p < 0.005$
Active institutions as a percentage of existing ones	96%	73%	
Active institutions established by current company	63%	20%	$p < 0.05$
Written procedures for managing institutions	85%	53%	$p < 0.05$
Election of members (vs. appointment)	86%	53%	$p < 0.05$
External membership authorized	63%	7%	$p < 0.001$
Periodic renewal of membership	89%	60%	$p < 0.01$
Mechanisms for damage compensation to rural population	100%	25%	$p < 0.01$
Benefit-sharing mechanisms in sampled villages (N=34 in FSC, N=35 in non-FSC, total 69)			
Private benefit-sharing mechanisms	100%	44%	$p < 0.05$
Annual redistribution to all villages	89%	33%	$p < 0.05$
Education opportunities on addition to state-run services	78%	33%	
Electricity available 24/7 in <i>bases vie</i>	100%	50%	
Equipped <i>foyers</i>	85%	36%	$p < 0.001$
Customary uses (N=34 in FSC, N=35 in non-FSC, total 69)			
Shifting cultivation inside FMU	44%	33%	
FMU perceived as a constraint to shifting cultivation	43%	14%	
Hunting inside FMU	89%	100%	
FMU perceived as a constraint to hunting	83%	50%	
NTFP gathering inside FMU	67%	100%	
FMU perceived as a constraint to NTFP gathering	17%	0%	
Satisfaction with protection of sacred sites	50%	0%	

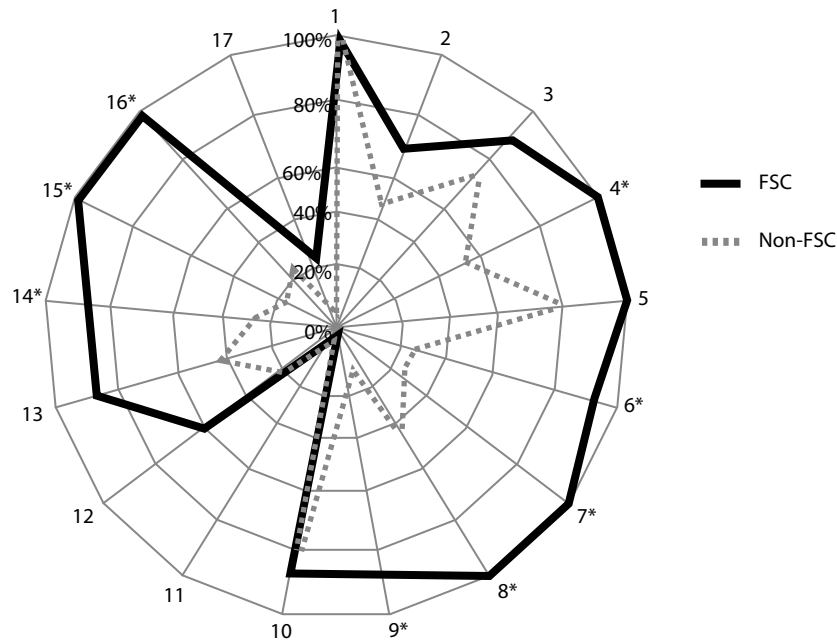


Figure 12. Variables related to working and living conditions (see Table 8).

Note: Numbers with an asterisk indicate variables with statistically significant differences

Table 8. Working and living conditions in sampled FMUs.

1	Presence of an <i>économat</i>
2	Satisfaction with prices in <i>économats</i>
3	Potable water
4	Individual home showers and WC systems
5	Provision of safety equipment
6	Procedures to control and verify use of safety equipment
7	Health and life insurance provided to all staff
8	Local medical facilities
9	Injury-related procedures
10	Staff with permanent contracts
11	Women as a proportion of total staff
12	Salary range higher than national collective agreements
13	Houses in <i>bases vie</i> built of durable materials
14	Written procedures for house occupancy
15	Written procedures for waste collection and treatment
16	Active associative bodies (e.g. unions)
17	Written procedures for conflict resolution

noncertified FMUs that are allowed to conduct operations without respecting national regulations. Many interviewed workers were well aware of their irregular situation, but the lack of legal recourse and alternative employment options, and the asymmetrical power relations with both company and state officials, left them few means to improve their condition. This was especially true where local associations did not exist or were not empowered to enter into collective bargaining with companies.

Results on variables that are not mandated by national law might indicate that certification is an incentive to companies to raise their standards. Some assessed facilities, procedures and social behaviours were already in place before certification was granted. This was also the case for several variables related to working and living conditions in FMUs without FSC certification but with a third-party-audited chain of custody. Yet we found improved conditions since certification in all cases. All assessed companies had put documented efforts and means in place to achieve such results. Also, although some complaints were recorded, interviewed workers overwhelmingly agreed that working and living conditions improved since the company announced that it was preparing

for certification. The provision of local medical facilities was arguably the most representative example of such improvements. In many cases, existing facilities had become the point of reference on health issues for entire administrative units (e.g. councils or departments). They provided better services, with more qualified personnel, and a larger and more regularly restocked pharmacy than local alternatives.

Nonetheless, improvements in implementation are also still needed within the certified FMUs. Indeed, there will always be a 'best' and a 'worst' case even among companies with certified FMUs. Companies have different backgrounds and operate in different settings with different logistical, social and business challenges. Yet there is only one FSC logo vis-à-vis the market or the final buyer. Some companies with certified FMUs are currently making more effort and obtaining better results than others. On some variables — such as medical facilities, housing conditions and waste collection — one wonders whether those FMUs should be put into the same category. In terms of reducing such gap within certified FMUs, the approval of a regional standard is surely welcomed, but the recommendation is also to provide more common training of auditors from different certifying bodies across the different standards they currently use in each country, while waiting for official national standards to be approved.

Recommendation:

More common training of auditors from different certifying bodies should be provided across the different standards they currently use in each country.

One high priority for companies with both certified and noncertified FMUs is the establishment of clear, written procedures for resolution (including third-party arbitration) of professional and workplace conflicts. Given that all companies with certified FMUs already authorize associative bodies and include them in their internal procedures, this should not be difficult to implement. Those procedures should include clear rules for reducing subjectivity in managing complaints and requests. For instance, rules should indicate when a request can be forwarded directly to the managerial team and when it must pass

through staff representatives. Several times during interviews with company managers, especially in late afternoons when workers ended their shift, a line formed outside the manager's office with people waiting to express personal requests. Effective complaints procedures could avoid the risk of managers being swayed in their responses to such requests by their daily mood and level of fatigue.

Recommendation:

Logging companies should establish clear, written procedures for resolution (including third-party arbitration) of professional and workplace conflicts.

Overall, the impression conveyed by interviewees (both managers and workers) was that differences in working and living conditions between certified and noncertified FMUs were due to the existence of the FSC Standard. Not only is the FSC Standard stricter and more detailed than national laws, but it is regularly updated, controlled and verified. National laws do not uphold as high a standard and are weakly implemented and verified.

5.1.1 Staff recruitment

One problem reported by all companies was the lack of motivated and skilled workers. Workers with the necessary skills are hard to find locally, and once a staff member has been trained for many months, the risk of losing him or her is high. This problem seems more acute in companies with certified FMUs or with a third-party-audited chain of custody, which have greater needs for skilled and trained people. A possible short-term negative consequence of staffing shortage could be decreased social performance. For example, we met managers in companies with certified FMUs that had recently lost their sociologist (the person in charge of dealing with communities, platforms of negotiations, and various social complaints by the local population) and had encountered many difficulties in finding a new one.

This situation has particularly negative impacts on social relations and interactions through existing institutions that need constant nurturing. In several cases, companies were quick to sign a contract with local or national NGOs who could fill the interaction gap for some time. However,

NGOs or short-term consultants are external to the company and do not generally follow a company-approved long-term plan. Hence, they may send a wrong signal of disengagement by the company to the local population. We believe the best way to avoid this problem is to form integrated social teams within the company, made up of at least four or five members. This might of course have cost implications, but members do not necessarily have to be hired specifically for such a task (they could easily be part of the more general forest management group) as long as they receive training in working with communities, hold regular team meetings and are knowledgeable about the company's social agenda, so to be able to palliate the temporary absence of one or another member and to maintain relationships with neighbouring villages.

Recommendation:

Logging companies should form integrated social teams. Members should receive training in working with communities, hold regular team meetings and be knowledgeable about the company's social agenda.

Certified and noncertified FMUs had an equally low score (their lowest) in the percentage of women on staff (3%). Neither the lack of skilled personnel nor the lack of women in the workforce result in major corrective actions required by certifying bodies, as these are outside the scope of their audits. We believe a few indicators should be added to the FSC Standard to try to improve the current ratios — notably by pushing logging companies to adopt more proactive strategies to hire women and train young managers (especially from national universities). The same holds true in the case of noncertified FMUs, of course, but in this case it is the legal framework that could

Recommendation:

Logging companies should adopt and implement more proactive strategies to hire women and train young managers. A few indicators should be added to the FSC Standard to monitor the adoption and implementation of such strategies.

be adapted through financial or other incentives and disincentives.

Companies also often have problems in recruiting unskilled staff because of rural–urban migration. In many villages visited by the team, the population had decreased (sometimes significantly) during the last decade because of this; young people especially had moved to the cities or abroad in search of better job options. This phenomenon was only partially balanced by the number of retired people coming back to their village, who cannot fill the needs of logging companies. Suggestions in this case are more difficult to make, but in the case of FSC, the presence and effectiveness of clearly written career paths, including opportunities for skills upgrading and further training, could help retain staff. This suggestion could be enforced by inserting a few relevant indicators in the Standard.

Recommendation:

Logging companies should adopt and implement clearly written career paths, including opportunities for skills upgrading and further training. A few indicators should be added to the FSC Standard to monitor the adoption and implementation of career paths.

5.2 Institutions

Active institutions through which local people and the company can regularly discuss issues are arguably the most distinctive feature of certified FMUs. All measured variables showed higher positive values than in noncertified FMUs (Figure 13). Institutions also existed in noncertified FMUs that are committed to certification, albeit with lower standards. Their legitimacy and effectiveness and people's degree of satisfaction with them are testimony to one clear positive change that certification can bring about, corroborating results in other parts of the world (e.g. Ulybina and Fennell 2013).

Many interviewees in rural areas with active institutions talked about a 'new way' in which forestry operations can be conducted. Such new way also included logging companies suggesting the inclusion of women and minority groups as

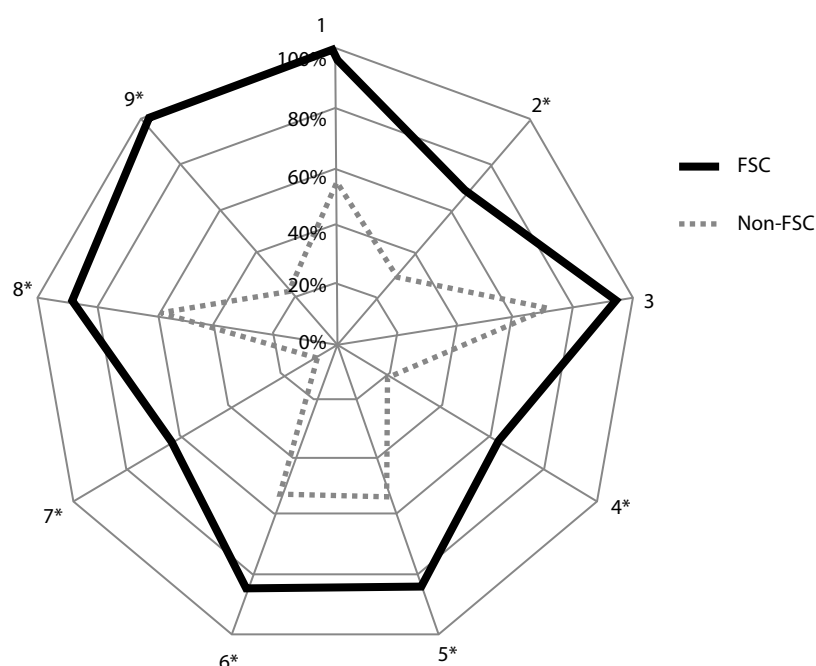


Figure 13. Variables related to institutions (see Table 9).

Note: Numbers with an asterisk indicate variables with statistically significant differences

Table 9. Institutions in sampled villages.

1	Knowledge of FMU status
2	Existing institutions
3	Proportion of existing institutions that are active
4	Active institutions established by current company
5	Written procedures to manage institutions
6	Election of members (vs. appointment)
7	External membership authorized
8	Periodic renewal of memberships
9	Damage compensation mechanisms

members of the institutions.¹⁴ Some interviewees stated that “this is not in our customs,” but overall results showed that current institutions do include them. Further research is however needed to assess to what degree the voices of such

groups are accounted for in the institutions’ final deliberations.

This dynamic is unlikely to quickly or easily resolve past problems. For example, we argue that the long-term sustainability of existing institutions is not yet guaranteed by the presence of certified FMUs. Until now, companies with certified FMUs have been more prone to directly provide funding or technical support to institutions than companies with noncertified FMUs. However, managers interviewed for this study raised doubts about whether the current model could be sustained in the long term. Such feelings might be heavily influenced by the recent financial crisis, which has had negative impacts on the global timber market, but they also indicate that alternative models might be needed in the long term.

Nonetheless, both internal and external members of institutions related to certified FMUs, including local state officials, said that existing institutions provided more and better space for them to express their complaints and to have them recorded and in many cases resolved. Because of such overall positive feedback, we believe it is of the utmost importance that the same type of institutional

¹⁴ The presence of women in such institutions is not related to the presence of women in the workforce. Institutions are external to the company and membership does not depend on the companies’ hiring policies.

space be provided for all villages in and around certified FMUs. This might mean either that all villages have at least some representation in existing institutions, or that new institutions are created in villages still lacking them. The current average rate (66% of villages), although significantly higher than in noncertified FMUs, hides low values in some certified FMUs. Managers were generally aware of this, and indeed shared their concerns about why and where institutions had not yet been set up. For instance, in one case, an entire village did not want to hold discussions with the company because of an ongoing conflict about a broken bridge. For such stalled situations, as well as for other villages where institutions are lacking, certifying bodies should push companies to draw a clear roadmap for their creation, with milestones to be checked in subsequent audits.

Recommendation:

Logging companies should adopt and implement a clear roadmap for all villages to be represented in active institutions.

Institutional settings need not be equal in all FMUs. Clearly, a large number of villages and a large population close to urban centres might have different needs than smaller villages or those in more remote locations. It is, however, important to guarantee legitimacy and representativeness, so that people do not feel as “excluded as in the past” (before certification), as one interviewee put it. Certifying bodies should also regularly verify that major legitimacy problems are not left unaddressed, possibly with an increased number of random visits and casual questions to villages and institutions. To the maximum extent possible, this should be done without company managers taking part in the exercise, so as to maximize freedom of expression.

Recommendation:

Certifying bodies should increase the number of random visits to villages and institutions, and casual questions to the populations, to check whether legitimacy problems are left unaddressed. Visits should occur without companies’ representatives.

The suggestion of more visits to villages or institutions also holds true for state officials in charge of implementing the law in both certified and noncertified FMUs. However, results indicated that means and capacities were very weak in this regard. Also, the impression from interviews with state forestry officials is that they are much more at ease managing trees than people. This is because of their mandate and experience, and it will require a concerted effort by governments to modernize the curricula of forestry schools and the composition of verification teams. For instance, officials from ministries other than the Ministry of Forests (e.g. Territorial Administration, Health or Women) could join the teams.

Given the weak role played so far by State officials in setting up and sustain local institutions, albeit such role is oftentimes mandated by the law, one could argue that, through the current model, non-state actors such as FSC might compound the problems of creating institutions that only serve the purpose of obtaining and maintaining certification, irrespective of the existing local context or previously established institutions. Hence, it is important for certifying bodies to also check that institutions supported by companies are sufficiently related to the local context (e.g. existing institutions), in order to avoid the proliferation of local institutions that only serve one limited purpose and might engender negative impacts on overall local legitimacy and effectiveness.

Recommendation:

Certifying bodies should check that institutions supported by companies are sufficiently related to the local context (e.g. existing institutions), in order to avoid the proliferation of local institutions.

5.2.1 Better institutions?

The study results point to a significant association between certification and better institutions and governance. Positive changes in all variables in certified FMUs (and best-performing noncertified ones) occurred when companies decided to certify, irrespective of the law. Such changes have occurred several years after (e.g. Cameroon) as well as before (e.g. Gabon) the law required companies to do so.

With the caveats discussed in the previous section, this indicates that certification could be one of the most important factors explaining the creation of more legitimate and effective local institutions.

In some cases, plausible alternative explanations for the presence of better institutions exist. For instance, around one certified FMU we found a very strong associative history, dating back to the 1970s when agricultural-oriented local associations were formed. In this case, current certification-related institutions were rather created as the forestry branches of pre-existing institutions than new, independent and possibly overlapping ones. In another case, a history of logging-related conflicts pre-dating certification was found in several villages around one certified FMU. In this case, the company had been “forced”, as one manager put it, to come to terms with a situation that was causing the company “great financial and reputational damage.” Concurrently, some members of the local population, as explained by a member of a local NGO that supported them at the time, “acquired negotiating skills that proved very useful” when the company later initiated discussions about the setting up of certification-related institutions.

As in the case for working and living conditions, differences between certified and noncertified FMUs seem to have materialized because, once companies agreed to stick to the rules established by the FSC Standard, they were taken in hand by the auditors who took a carrot-and-stick approach. Such rewards and penalties, notably on social issues, are altogether missing in the implementation of the legal frameworks in the three countries. Some rightly argue that, particularly in the case of penalties in certified FMUs, too much power is still left in the hands of (subjective) auditors (e.g. Maletz and Tysiachniouk 2009). This allows companies with certified FMUs to set up or promote institutions that operate and perform very differently. The adoption of better indicators aimed at decreasing the subjectivity of auditors remains a valuable target for the FSC, albeit not an easy one to reach, especially considering the flexibility that such indicators should maintain with regards to local and ethnic variations in interests and capabilities. Perhaps, considering the growing number of certified FMUs, a more short-term suggestion to the FSC could be to create and populate comparative

tables with a list of the various carrot-and-stick approaches used in different FMUs for several different problematic situations. The more data and background knowledge inserted into the tables, the easier should be to build typologies of situations for which similar decisions could be taken by auditors.

Recommendation:

The FSC and certifying bodies should create and populate national or regional comparative tables with a list of the various carrot-and-stick approaches used in different FMUs for several different problematic situations. Updated tables should be provided to all auditors.

For the time being, however, substantial differences exist in managers’ perceptions and the effectiveness of institutions within companies with certified FMUs. In some cases, managers seem fully convinced of the benefits of the new dynamic fostered by the FSC. In others, they still seem uncertain about whether to embrace or resist change. For instance, two or three years are the most common intervals for mandated elections in institutions. Interviewees revealed a tendency in some companies to prefer the maintenance of already qualified and trained representatives, rather than dealing with new members after short time intervals, corroborating the results obtained for Cameroon by Tsanga et al. (2014). This could create tensions among people, notably incumbent members and their fellow villagers. There is of course no one right amount of time for members to hold positions, but if companies feel the need to lengthen currently agreed mandates, that should be debated within the institution itself.

The inverse problem also exists, when members of the population would like to bypass the institution. One counterintuitive finding among active institutions in certified FMUs is that, in several cases, people reported dissatisfaction with the procedure of reporting complaints. This seemed to stem from asymmetric power relations between the members of the extended community and the institution’s official members. At times, the latter may act as compulsory filters through which complaints must pass, while some people would prefer to deal directly and informally with

the logging company. We recorded a few cases in which that issue arose but was resolved because both the institution and the company played by the rules (ensured that the problem was discussed during official meetings). We recommend that written procedures be established that include clear rules on the reporting of complaints, possibly with examples of cases where one-to-one agreements with the company are acceptable and when they are not.

Recommendation:

Local institutions should adopt clear written procedures that include rules on the reporting of complaints, possibly with examples of cases where one-to-one agreements with the company are acceptable and when they are not.

5.3 Benefit-sharing mechanisms

There was a consistent association between certification and the existence of benefit-sharing mechanisms in addition to, and with a more equitable redistribution than, those mandated by law (Figure 14).

Because of their dual (public/private) nature, however, benefit-sharing mechanisms were the most difficult theme to research. This was especially the case for certified FMUs, where all companies had at least one private scheme in addition to the public one (the RFA in Cameroon and the *redevances* in Congo and Gabon). Most people tended to consider payments from both schemes as money they are entitled to “because [their] forest is being taken away,” as one interviewee put it. In its essence, this interpretation is correct. But the confusion makes roles and responsibilities difficult to establish and assess. For instance, people in most villages expressed dissatisfaction with the current impacts of public mechanisms, but also held logging companies, not the government, accountable for failures and poor performance.

This might occur for several reasons. First, the legal framework could be incomplete; people complain to companies about the amounts they receive, but the government has not yet issued the necessary implementing decrees to fix those amounts. For instance, in Gabon, an implementing decree establishing the amounts to be paid by companies is still awaited more than a decade after the adoption of the law. Meanwhile, the certified and noncertified FMUs in this study paid very different

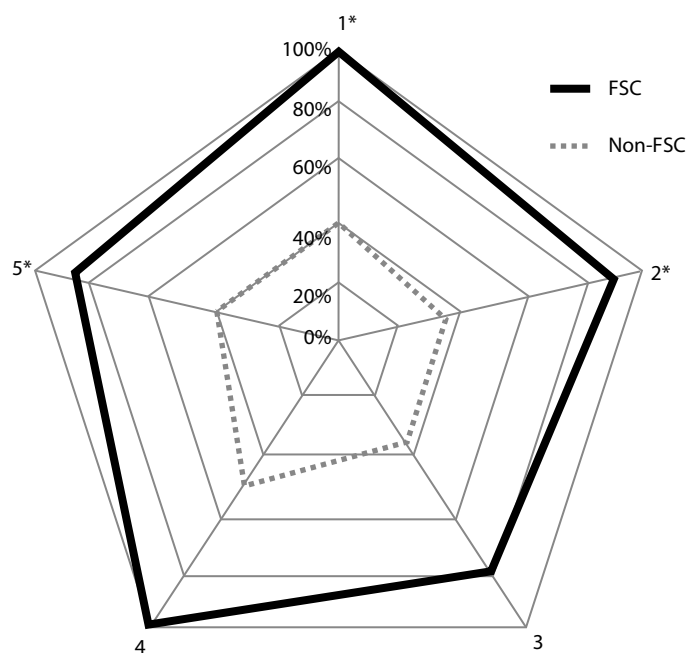


Figure 14. Variables related to benefit sharing (see Table 10).

Note: Numbers with an asterisk indicate variables with statistically significant differences

Table 10. Benefit-sharing mechanisms in sampled villages.

1	Private benefit-sharing mechanisms
2	Annual redistribution to all villages
3	Education opportunities in addition to those offered by the state
4	Electricity in <i>bases vie</i> (24 hours a day/7 days a week)
5	Equipped <i>foyers</i>

amounts: an average *redevance* of about €1.4 per cubic meter harvested in certified FMUs, vs. about €0.4 in noncertified FMUs.

Second, there could be frustration about unmet expectations: most villages have experienced contact with logging operations for decades, and they do not have much to show for it except for the *bases vie*. The adoption of the most recent legal frameworks created high hopes, as state officials, civil society and international organizations spread a message about the forests benefiting the people. In particular, such benefits should have come from new concepts such as community forestry, community development, and benefit-sharing mechanisms. But words have yet to be translated into deeds. In Cameroon, for instance, after more than a decade of implementation and about €100 million redistributed around FMUs, the RFA can show no evidence of positive impacts on rural livelihoods. In fact, money has had a tendency to disappear before reaching the local populations, with very few corrective actions taken by the government (Ndjanyou and Majerowicz 2004; Cerutti et al. 2010).

A third potential reason is proximity: companies are nearby, while the government is distant and seems immaterial. Companies — especially those with certified FMUs, with their more effective institutions — maintain regular interactions throughout the entire territory, not just the part where annual operations occur. This is not the case in most noncertified FMUs.

For all these reasons, and in order to avoid disruptions that could negatively affect both their business and the positive national and international image gained through certification,

companies with certified FMUs thus tend to fund social peace with private contributions. Study results suggested that private schemes conducted by companies with certified FMUs were more numerous and better organized and managed than similar schemes adopted by companies with noncertified FMUs. As in the case of institutions, the historical social conditions under which each company has been operating in one specific area might partially explain findings. For instance, the time of contact with the local populations might be an important explanatory variable to consider, as well as previously discussed and settled conflicts and strong organisational capacities built on other sectors' experiences, such as agriculture.

By and large, interviewees reported that private schemes were very welcome in villages around certified FMUs. However, as the next section discusses, they can also have unintended consequences.

5.3.1 Private or public schemes?

Private schemes are one of the most difficult aspects of the social impacts of certification to assess. We argue that the reduction in responsibilities of logging companies (compared to the past when they functioned almost as a state within the state) was one of the targets that could be reached with the adoption of the current laws. This was to be achieved not only through the integration of local communities in forest management, but also through the introduction of stronger fiscal schemes, coupled with public redistributive mechanisms.

In other words, what companies had previously provided (both in cash and in kind) to local communities, prior to the adoption of the current laws, was converted into a fee managed by the state, which in turn took responsibility for poverty reduction and development in local communities, through the equitable redistribution of those fees. The expected impacts have not yet materialized. Hence, people continue to turn to the companies for financial and in-kind support rather than working through the new legal frameworks.

We do not, of course, argue against the improvements that certification should offer to people's livelihoods. The results described above, and their regular improvement, are indeed what we believe the final buyers of FSC timber should

expect from the products they are buying. But we also believe that existing trends could foster a regression to or perpetuation of the 'state within the state' model. Interviewees indicated that such a trend is more passively accepted than actively promoted by managers of certified FMUs. In fact, they complained about the uneven playing field in which they must conduct operations. For instance, they contended that private schemes are tantamount to double taxation. The problem does not seem to be increased costs, as companies have been paying for such schemes for many years already, including during the recent financial crisis that negatively affected the timber market. And if double taxation means more money and better outcomes for the local population, as study results indicate, it could be argued that this is a benefit of certification.

Yet such trends put certification in the awkward position of sending a potentially wrong signal to both citizens and the state: citizens perceive that, despite failed public schemes, certification forces companies to maintain the flow of money toward them, maintaining or even increasing their dependence, while state officials take for granted that companies with certified FMUs will keep paying to maintain social peace, which benefits the state as well as the companies in spite of the government's poor performance in managing public schemes. This trend could provide a disincentive for the state to fulfil its responsibilities to citizens by allowing it to take advantage of the way private schemes make up for state shortcomings.

It is difficult to provide simple solutions to this conundrum. It involves long-term political issues of state and civil-society formation as well as practical, short-term issues related to economic sustainability and how to spread certification further in the Congo basin. On the one hand, any further contribution to local economies must surely be welcomed by FSC proponents and final buyers. After all, if companies pay, as they do under current schemes, it might mean that they are able to remain profitable despite these payments. On the other hand, if production costs for certified FMUs become so much higher than those for noncertified FMUs that they threaten financial sustainability, the former might decide to abandon their certificates.

One possibility is for national legislators to consider using incentives, especially financial incentives (e.g. Karsenty 2010), to encourage socially responsible behaviour in general and certification in particular. Public regulations and certification schemes could and should work together to encourage better management of the forest and improved livelihoods for its inhabitants. In that regard, recent efforts by the FSC to deploy permanent personnel to the region may increase chances for mutual learning and better future performances in the sector.

5.3.2 Benefit sharing and community development

All national legislation considers benefit-sharing mechanisms and community development as a single concept, so it is difficult for companies, local administrations, state officials and institutions to adopt or propose projects that target individuals or specific groups of people. For instance, one financial benefit yet to be established is the provision of micro-credit schemes. The reasons are complex and remain largely outside the scope of this report. For instance, roads, schools, health clinics and other communal social infrastructure ensure buy-ins by a large part of the rural community and generally do not result in further social differentiation. Conversely, specific production-related investment might foster differentiation, with particular groups being favoured over others. Nonetheless, hundreds of exchanges with people living in those areas deserve at least a comment.

Individual targeting does occur with currently funded projects. In several FMUs, both certified and noncertified, we documented privileged access to development funds by some members of the community. But privileged people still have to provide a communal reason for using the money received. For instance, they may call for a community project to invest in a plantation or in some agricultural practices, which then occur on their own customary land.

Instead of a forced communal objective, we suggest individual or small-scale investments should be made possible with the money received through redistributive schemes, both public and private. This would require numerous safeguards, including clear criteria as to what can and cannot be funded and rigorous independent management of the

funds, possibly by a micro-credit institution. This could result in innovative forms of local economic development, albeit not necessarily communal. Certification may be able to promote such change faster and better than public schemes, because the latter would require modification of current laws and policies. For instance, private schemes could be used to set up annual calls for proposals managed by a micro-credit institution for local investment in institutions or individuals. Safeguards would be needed to avoid the fate of money already disbursed through public schemes. For instance, the complex issues of how to channel credit to beneficiaries and avoid the problem of funds disappearing would still need to be addressed with clear and strict management criteria. Funds could be set aside for marginalized groups (e.g. women and hunter-gatherers). We believe this approach could at least be proposed by companies to certifying bodies; if based on solid arguments, it could have a better chance of contributing to local development than the current approach.

Recommendation:

Individual or small-scale investments should be made possible with the money received through redistributive schemes, both public and private. Funds should be managed by micro-credit institutions. Safeguards and strict management criteria should be adopted.

5.3.3 Other benefits

The perceived benefits obtained by people both through redistributive schemes and through companies' daily operations indicate that people near certified FMUs are more satisfied than those near noncertified FMUs. For instance, infrastructure, the supply of electricity, and education and cultural opportunities occur more often and with better quality in certified FMUs.

One service that was the focus of strong opinions among interviewees was transportation. In areas where the only available transportation is in the local logging companies' lorries or cars, it was difficult for people to understand why, after certification, transportation was no longer available. (Although the FSC Standard does not explicitly forbid such a service, it does require companies to have "mechanisms in place to control illegal activities" [Principles 1,

6 and 8]. As a result, companies prefer to forbid transportation outright rather than risk supporting the trade of illegally harvested products such as bushmeat.)

Many interviewees complained about the sudden change in company transportation policy; one interviewee said that since certification, "the company is thinking too much about applying rules." Some certified companies continue to provide transportation to the local population, especially when they need to transport their agricultural produce. However, in all certified FMUs we found regulations prohibiting drivers to transport the local population, or incur professional sanctions. In most noncertified FMUs, on the other hand, transportation is regularly provided to, and much appreciated by, the local population.

After several years of implementation, we believe that the rules affecting transportation in company vehicles should be elaborated further between companies and auditors. Their impact on local livelihoods should be monitored by the company, as well as their impact on the practices they are supposed to stop. Only in cases where deterrence is working should the rule be maintained.

5.4 Customary rights

Study results indicated that the presence of an FMU, certified or not, is not associated with a significant change in local agriculture, hunting or NTFP collection practices. Some of these practices are, however, illegal. In particular, shifting cultivation in fields that did not already exist when an FMU was established, and hunting and NTFP collection with nontraditional means and for commercial purposes are banned in all three study countries.

While the level of reported activities inside the FMU is similar for certified and noncertified FMUs, people living around certified FMUs perceive the pressure of new regulations more than people living around noncertified FMUs. This is because companies with certified FMUs establish procedures and rules to enforce the law and hire personnel to enforce them. Communities perceive those efforts as a new constraint that goes against their customary rights.

Given weak law enforcement in the study countries, companies with noncertified FMUs are under much less pressure to implement the law, especially on matters not directly related to timber harvesting. They can thus adopt a position of greater tolerance of local customs, even when they break the law. Paradoxically, in this regard, social peace is more likely to be maintained in noncertified FMUs than certified ones. We did, however, observe several cases in which companies with certified FMUs had put in place measures to palliate their enforcement efforts, for instance by promoting better NTFP processing techniques or more intensive forms of agriculture in existing fields.

In general, however, all companies face an ethical dilemma when responding to customary rights and practices. Customary practices are almost always the primary source of income for rural people; agriculture, hunting and NTFP gathering have been practiced for centuries under rules that have great social legitimacy, even when made “illegal” by modern laws. Thus, for both economic and cultural reasons, any company action that puts them at risk would incite intense local opposition. The resources consumed by people exercising their customary rights are only rarely the same as those harvested by the logging companies. For instance, there are few examples of conflicting uses between selective harvesting of timber and customary hunting or NTFP gathering. Thus, there is little economic incentive for companies to oppose these customary practices, and doing so could be very expensive.

Even when the will and the financial resources exist, it can be difficult for companies to oppose customary practices. For example, around each FMU, hunting and gathering are practiced by thousands of people who cannot easily be controlled. Companies may have an obligation to control customary practices, but only the state has the power to sanction. Yet state officials have neither the means nor the time to enforce the law in the vast territories in question. Hence, such state efforts should be funded by companies (e.g. through the provisions of carburant and vehicles), which are not positively inclined to provide this funding. As a consequence, companies tend to organize occasional enforcement operations but are not able to conduct them permanently or even frequently.

Compensation is one alternative to enforcement; more effective mechanisms of compensation have been developed in certified FMUs than in noncertified ones. For instance, cultivated areas are usually much better identified and their destruction or abandonment is officially compensated by the operator. Agroforestry has been promoted in several certified FMUs, and processing and marketing of NTFPs are technically supported. Also, in half of the study villages in certified FMUs, sacred sites are identified and respected during logging operations.

All these interactions and negotiations in certified FMUs also contribute greatly to the improvement and activities of the existing institutions, as they occur during official gatherings and are often integrated in the annual plan of operations discussed and approved there. Often, activities are planned and funded through private funds.

5.5 Is certification making a difference?

Results indicate that certification can be significantly associated with better social performance. Because of the large number of variables that could influence the decisions of logging companies and their social impacts, it remains difficult to assert that certified FMUs would not have performed equally better in the absence of certification. However, such results and the fact that most of today’s certified companies were not reputed for their social and legal performances in the 1990s (e.g. Durrieu de Madron and Ngaha 2000; Forests Monitor 2001), suggest that causality may be plausible.

There are many similarities between the social situation reflected in the initial audits of many certified FMUs in the study countries and that found today in some noncertified FMUs. For instance, many sawmill and forest activities were not regulated by clear and written procedures; functional and effective institutions were missing; benefit-sharing mechanisms were largely dysfunctional; and no effort was made to find compromises on customary uses of the resource that may conflict with national laws. Yet today’s working and living conditions, institutions, benefit-sharing and consideration of customary rights, in and around those same FMUs, have

improved. Such improvements in certified FMUs can be clearly traced back to the period when the companies' management team decided to opt for certification.

Certification being a process, improvements did not occur at the same time or pace, or even with the same results, in all companies. But on average, in companies that took the decision to engage with the FSC — and implicitly with a more demanding market, improvements occurred at a much faster pace and with better results than in noncertified FMUs. Apart from managers' specific preferences or market-dependent decisions that were not assessed for this study, the most evident triggers that cause companies to improve their social performance seem to be (1) the need to maintain a permanent channel of communication with the local population, in order to avoid unexpected disruptions or social conflicts that might interfere with operations; (2) the periodic, regular and effective controls embedded in certification; and (3) improved reputational risk management.

Measured positive changes do not yet mean positive long-term impacts on the livelihoods of all people living in and around certified FMUs. Yet if any step in the direction of implementing the philosophy of sustainable forest management has been made on social issues in the Congo basin, that step has been encouraged by certification. Sometimes change simply meant correcting negative governance externalities, such as lack of law enforcement. Sometimes, as in the case of some working and living conditions, it meant making the additional efforts expected from the FSC. In still other cases, as with private benefit-sharing mechanisms, it meant redressing a negative situation created by the lack of a state presence to fulfil the FSC mandate.

Findings indicate that the average social performance of companies with certified FMUs is more legitimate and effective and bears more positive outcomes than that of companies with noncertified FMUs. However, they also indicate that there are differences *within* groups. Historical and cultural conditions might indeed make social outcomes more difficult in some areas or countries than others. Also, certification being a process, the time variable is important, especially on social performances that need long-term engagement, nurturing of relations, and almost daily consensus-

building discussions. This is a condition for auditors to assess before making their final judgments. Indeed, many such examples already fill the annual public reports of certified FMUs. Yet results also convey the feeling that auditors work on a case-by-case basis that does not allow several objective conditions (e.g. the time, money or effort companies spent on a social issue) to be compared between one company and another, in the same or different countries. This is probably natural given the presence of multiple auditors, certifying bodies and generic standards used by the latter until recently.

Nonetheless, we believe there remains an urgent need for a reduction of such differences among certified FMUs. In this respect, we suggest the establishment of social baselines against which certifying bodies, companies and consumers could monitor changes in social conditions towards a commonly agreed improved situation. Local conditions will always need to be considered, but both auditors and companies should also be able to learn from an increasing number of national and regional 'best case scenarios,' with improved and documented social performances. The FSC logo would thereby guarantee customers and consumers that existing differences in social performance would be continuously reduced against a common social baseline, and that logging companies would be held responsible for achieving clear and relevant social impacts on the ground.

Recommendation:

Logging companies should establish social baselines against which certifying bodies, other companies and consumers could monitor changes in social performances.

The gap between the best and worst performing FMUs is even greater *within* the group of noncertified FMUs. Among the best cases, we found many social improvements in FMUs that are managed through an approved plan and have already publicly declared their interest to move towards certification, for instance by adopting a third-party-audited chain-of-custody. Among the worst cases, none or very few improvements are found in noncertified FMUs that are still lacking an officially approved management plan, albeit

one has been submitted to the relevant Ministries for approval. In those cases, operations are largely focussed on harvesting the annual quota of timber, while considerations about improved social performances remain a distant thought.

In this respect, it is worth noting that, among the sample countries, only Cameroon currently has a majority of its FMUs (about 65%) managed through approved plans. The Republic of the Congo and Gabon have much lower ratios (about 13% and 31%, respectively). Before certification is given the ‘chance’ to lift the performances of those FMUs, it is thus also relevant to highlight the role that governments still have in fostering the implementation of the basic principles of sustainably forest management, notably by pushing all companies to prepare and submit forest management plans in all attributed FMUs.

5.5.1 Certification and the law

One might argue that it is easy to obtain positive average results with market-driven instruments when the state-driven baseline is very low. By pushing such reasoning further, one might even argue that the current state-driven baseline, in the Congo basin, is so low that there exists no possible point of contact with certification. In other words, certification could fulfil its true mission — and should only start to be granted — in countries where minimum internationally agreed standards of governance are applied. We would find it difficult to suggest who should set such minimum standards, but this is indeed an argument worth considering. For instance, an interesting result of the many informal interviews conducted for this study was that certification engendered a perverse incentive in some state officials (in two countries): Bribes asked of companies with certified FMUs could increase with respect to past operations, “otherwise I will send a message to Greenpeace,” as one interviewee was reportedly told. We could not verify such allegations, but they convey an idea of the baseline governance situation and the new opportunities that have emerged with the advent of certification.

That said, one should also consider that all legal frameworks in the region have a weak record of implementation, notably on social issues. Hence, given the improvements that certification has been able to bring about in a relatively short time, waiting for improvements of the governance

baseline before considering certification might prove risky. We argue that it is less risky to fully support certification with its current weaknesses, while of course pushing for improvements. Also, maintaining certification in the current array of options aiming at implementing sustainable forest management could foster a process of shared learning, whereby legislators would pick the positive impacts of certification and embed them into improved legal frameworks.

For example, we positively assess the recent decision of Cameroon to recognize FSC-certified timber as compliant with EU’s FLEGT Action Plan requirements. Within the nonexhaustive list of social variables assessed for this study, we believe such legal timber will be more likely to have been produced with respect for mandated social criteria. Conversely, the current social situation in the average noncertified FMU is a bit worrying in terms of the legal timber that will be sourced there. In fact, the “pragmatic focus on legality” embedded in the Action Plan agenda (European Commission 2004, p.1), as compared to a larger focus on sustainability, will only bear generalized positive results on social issues insofar as the state is willing to enforce social regulations. Our sense from the fieldwork conducted for this study is that social implementation outside certified FMUs risks remaining negligible in the short to medium term, for two reasons. First, state officials in charge of controlling daily forestry operations lack the capacity to monitor social implementation and impacts, because this is not part of their training, experience or terms of reference. Second, while social issues do feature in the laws’ general objectives, they carry low political and financial significance in forest policies. Unless targeted social measures are adopted, implemented and verified by the states, the legal timber that will be produced from noncertified FMUs risks hiding even wider differences than those reported in this paper for certified timber.

This does not mean that social issues are never treated in noncertified FMUs. For instance, some social issues are addressed in noncertified FMUs by companies that have shown an intention to seek certification, both in deeds (e.g. by adopting a third-party-audited chain-of-custody) and in words (e.g. through their communication efforts and during interviews held for this study). Yet, for the rest of the noncertified FMUs, and

particularly for the large number among them still lacking a management plan, there exists to date no independent means to periodically assess their social performance. From the final buyers' perspective, this is a point worth stressing. The impression we received from this study is that by "weeding out the bottom" (Steering Committee 2012, Appendix F, A-103), legality verification might be able to clean timber supply chains from

the worst ecological performers. This is because some ecological impacts (e.g. harvesting and regeneration rates) can be checked by local state officials through the monitoring of approved management plans. Yet verification strategies will need improved and innovative ways of implementing legality if the worst social performers are also to be sanctioned, by the state or the legal market.

6 Conclusion

This study assessed the social performance of a set of FSC-certified FMUs and compared it with the performance of similar noncertified FMUs in Cameroon, the Republic of the Congo and Gabon (the only three countries in the Congo basin that have FSC-certified FMUs). Results showed that the longer one company remained in one place, the deeper social relations with the neighbouring population became. This in itself is conducive to an environment in which there is less conflict between the local population and logging companies. However, it is usually only after companies decided to pursue certification that several practical social improvements occurred. In particular, in certified FMUs, this study found better working and living conditions for workers and their families; more inclusive and better governed institutions for negotiations between the local population and logging companies, except with regard to conflict-resolution mechanisms; better managed and more effective benefit-sharing mechanisms; and innovative ways of dealing with problems related to infringement of customary uses.

Sometimes improvements meant correcting negative governance externalities, such as absent or weak law enforcement. Sometimes they meant going the extra mile that consumers in demanding markets would expect logging companies to go. And at still other times, improvements meant that companies with certified FMUs had to take over the role of an absent state to avoid potentially conflicting situations that would harm their certified status. In this latter case, we argue that the resulting positive social impacts risk maintaining logging companies' historic role of a state within the state, which they should be abandoning.

We suggest that positive social outcomes materialized in certified FMUs, more than in noncertified ones, because companies were required

by certification to set and respect a calendar of implementation of multiple criteria, which were then checked during annual evaluations. Opinions vary on the recent events that led to the suspension of one FSC certificate in the Republic of the Congo, but such action is a further illustration that FSC certification has some 'teeth.' Such regularity of evaluations that push companies to constantly improve and the possibility of sanctions are still lacking in the national legal frameworks of the three study countries. Hence, in noncertified FMUs that are only constrained by the law there is a more lax implementation agenda, almost no verification of social standards, and more conflict with local populations. However, if a gradient in social performance could be established, companies that are not certified but have publicly declared their intention to become certified (e.g. by adopting a third-party-audited chain-of-custody) would appear between the other two groups. This indicates that some positive changes may be induced by the pursuit of certification even before it is achieved.

Measured differences draw a clear picture of the social performance of companies with certified FMUs vs. companies with noncertified FMUs. We believe that this picture is the most relevant contribution of this study to the current discussions about the impacts of certification on the world's forests and people living in and from them. The complex historical and political-economic reality in which certification has developed in the Congo basin might well make issues of attribution and causality difficult to clarify. Yet results help establish a clear boundary that currently exists between certified and noncertified timber: The former is sourced in FMUs that implement not only legally mandated social standards but also voluntarily adopted ones that are superior and more effective.

There should of course be no complacency from the FSC or logging companies with certified FMUs in comparing themselves with the ‘bottom,’ as the logic of the FSC is to reward more responsible forest managers who are assessed against ever-evolving standards, irrespective of the quality of national legislation. But one should also not forget that companies with certified FMUs in the study countries are competing less against a theoretical global logging company than against their

neighbours, who daily produce the same species and sell on similar markets, albeit with much lower investments, especially those targeted to improve social performance. In this very competitive and uneven playing field, and with the scarce price premiums obtained so far (Picquenot et al. 2012; Steering Committee 2012), the evidence presented indicates that certification in the Congo basin has been able to push companies toward remarkable social progress.

7

References

- Agrawal A, Chhatre A and Hardin R. 2008. *Changing governance of the world's forests*. Working Paper No. W08I-4. Ann Arbor, MI: International Forestry Resources & Institutions Programme, University of Michigan.
- Assembe Mvondo S. 2005. Décentralisation des ressources forestières et justice environnementale: analyse des évidences empiriques du Sud-Cameroun. *Law Environment and Development Journal* 1(1):35–49.
- Auld G, Gulbrandsen LH and McDermott CL. 2008. Certification schemes and the impacts on forests and forestry. *Annual Review of Environment and Resources* 33(1):187–211. doi:10.1146/annurev.energy.33.013007.103754
- Bass S, Thornber K, Markopoulos M, Roberts S and Grieg-Gran M. 2001. *Certification's impacts on forests, stakeholders and supply chains. Instruments for sustainable private sector forestry series*. London: IIED .
- Blackman A and Rivera J. 2011. Producer-level benefits of sustainability certification. *Conservation Biology* 25(6):1176–85.
- Caliendo M and Kopeinig S. 2008. Some practical guidance for the implementation of propensity score matching. *Journal of Economic Surveys* 22(1):31–72.
- Cashore B, Auld G and Newsom D. 2004. *Governing through markets. Forest certification and the emergence of non-state authority*. New Haven & London: Yale University Press.
- Cashore B, van Kooten GC, Vertinsky I, Auld G and Affolderbach J. 2005. Private or self-regulation? A comparative study of forest certification choices in Canada, the United States and Germany. *Forest Policy and Economics* 7(2005):53–69.
- Cerutti PO and Lescuyer G. 2011. *Le marché domestique du sciage artisanal au Cameroun: état des lieux, opportunités et défis*. Occasional Paper 59. Bogor, Indonesia: Center for International Forestry Research.
- Cerutti PO, Lescuyer G, Assembe Mvondo S and Tacconi L. 2010. The challenges of redistributing forest-related monetary benefits: A decade of logging area fees in Cameroon. *International Forestry Review* 12(2):130–38.
- Cerutti PO, Tacconi L and Nasi R. 2008. Sustainable forest management in Cameroon needs more than approved forest management plans. *Ecology and Society* 13(2):36.
- Cerutti PO, Tacconi L, Nasi R and Lescuyer G. 2011. Legal vs. certified forest management: Preliminary impacts of forest certification in Cameroon. *Forest Policy and Economics* 13(3):184–90.
- Chan M and Pound B. 2009. *Literature review of sustainability standards and their poverty impact*. London: DFID .
- Chen J, Innes JL and Tikina A. 2010. Private cost-benefits of voluntary forest product certification. *International Forestry Review* 12(1):1–12.
- [CIFOR] Center for International Forestry Research and [MINFOF] Ministère des Forêts et de la Faune. 2013. *Etude de l'importance économique et sociale du sous-secteur forêt-faune au Cameroun*. Yaoundé, Cameroun: CIFOR and MINFOF.
- Colfer CJ, Pierce. 2011. Marginalized forest peoples' perceptions of the legitimacy of governance: An exploration. *World Development* 39(12):2147–64.
- Damette O and Delacote P. 2011. Unsustainable timber harvesting, deforestation and the role of certification. *Ecological Economics* 70(6):1211–19.

- De Lima ACB, Keppe ALN, Alves MC, Maule FR and Sparovek G. 2008. *Impact of FSC forest certification on agroextractive communities of the state of Acre, Brazil*. Instituto de Manejo e Certificação Florestal e Agrícola.
- de Wasseige C, Devers D, de Marcken P, Eba'a Atyi R, Nasi R and Mayaux P, eds. 2009. *Les forêts du bassin du Congo—etat des forêts 2008*. Kinshasa, Democratic Republic of Congo: Office des Publications de l'Union Européenne.
- de Zeeuw H and Wilbers J. 2004. *PRA tools for studying urban agriculture and gender*. Leusden: Resource Center on Urban Agriculture and Forestry.
- Durrieu de Madron L and Ngaha J. 2000. *Revue technique des concessions forestieres*. Yaoundé, Cameroon.
- Durst PB, McKenzie PJ, Brown CL and Appanah S. 2006. Challenges facing certification and eco-labelling of forest products in developing countries. *International Forestry Review* 8(2):193–200.
- Espach R. 2006. When is sustainable forestry sustainable? The Forest Stewardship Council in Argentina and Brazil. *Global Environmental Politics* 6(2):55–84.
- European Commission. 2004. *Why the focus on legality, not sustainability?* Forest Law Enforcement, Governance and Trade Briefing Notes No. 04. Brussels: European Commission.
- Fischer RA. 1922. On the interpretation of chi square from contingency tables, and the calculation of P. *Journal of the Royal Statistical Society* 85:87–94.
- Forests Monitor. 2001. *Sold down the river—the need to control transnational forestry corporations: A European case study*. Cambridge, UK: Forests Monitor.
- Forest Stewardship Council. 2012. *FSC forest stewardship standard for the Congo basin region—Norme FSC pour la certification des forêts du Bassin du Congo*. Forest Stewardship Council (FSC). FSC-STD-CB-01-2012-EN Congo Basin Regional Standard EN.
- Gertler PJ, Martinez S, Premand P, Rawlings LB and Vermeersch CMJ. 2011. *Impact evaluation in practice*. Washington, DC: International Bank for Reconstruction and Development/World Bank.
- Glew L, Mascia MB and Pakiding F. 2012. *Solving the mystery of MPA performance: Monitoring social impacts. Field manual version 1.0*. Washington, DC and Manokwari, Indonesia: World Wildlife Fund and Universitas Negeri Papua.
- Global Forest Watch and [MINFOF] Ministry of Forests and Wildlife. 2012. *Interactive forestry atlas of Cameroon—version 3.0—overview report*. Washington, DC, and Yaoundé, Cameroon: World Resources Institute and Ministry of Forests and Wildlife.
- [INS] Institut National de la Statistique. 2002. *Deuxieme enquête Camerounaise aupres des menages—profil de pauvreté en milieu rural au Cameroun en 2001*. Yaoundé, Cameroun: Institut National de la Statistique.
- Karsenty A. 1997. Certification et gestion durable: entre commerce et recherche. *Bois et forêts des tropiques* 251(1):76–77.
- Karsenty A. 2010. Forest taxation regime for tropical forests: Lessons from central Africa. *International Forestry Review* 12(2):121–29.
- Larson AM and Ribot JC. 2005. Democratic decentralisation through a natural resource lens: An introduction. In Ribot JC and Larson AM, eds., *Democratic decentralisation through a natural resource lens*. London: Routledge.
- Lescuyer G. 1996. Monetary valuation of the non timber forest products: Does it contribute to determine a sustainable management of those resources? *Voices from the commons. 6th annual conference of the International Association for the Study of Common Property (IASCP)*. Berkeley, CA.
- Lescuyer G. 2007. Livelihoods and the adaptive application of the law in the forests of Cameroon. In Tacconi L, ed., *Illegal logging: Law enforcement, livelihoods and the timber trade*. London: Earthscan. 167–90.
- Lescuyer G, Assembe Mvondo S, Essoungou JN, Toison V, Trébuchon J-F and Fauvet N. 2012. Logging concessions and local livelihoods in Cameroon: From indifference to alliance? *Ecology and Society* 17(1):7.
- Lescuyer G, Cerutti PO, Ndotit Manguiengha S and Bilogo bi Ndong L. 2011a. *Le marché domestique du sciage artisanal a Libreville: état des lieux, opportunités et défis*. Occasional Paper. Bogor, Indonesia: Center for International Forestry Research.
- Lescuyer G, Yembe-Yembe RI and Cerutti PO. 2011b. *Le marché domestique du sciage artisanal en République du Congo: état des lieux, opportunités et défis*. Occasional Paper.

- Bogor, Indonesia: Center for International Forestry Research.
- Lewis J, Freeman L and Borreill S. 2010. Free, prior and informed consent: Implications for sustainable forests management in the Congo Basin. In German LA, Karsenty A and Tiani A-M, eds., *Governing Africa's forests in a globalized world*. London: Earthscan.
- Maletz O and Tysiachniouk M. 2009. The effect of expertise on the quality of forest standards implementation: The case of FSC forest certification in Russia. *Forest Policy and Economics* 11(5–6):422–28.
- Martinet M. 2008. *Principes, critères et indicateurs de la certification Forest Stewardship Council: Evaluation de la mise en œuvre des aspects sociaux dans le cas des aménagements forestiers au Cameroun*. [Mémoire de fin d'études]. Montpellier, France: Ecole Nationale du Génie Rural des Eaux et Forêts.
- Marx A and Cuypers D. 2010. Forest certification as a global environmental governance tool: What is the macro-effectiveness of the Forest Stewardship Council? *Regulation & Governance* 4:408–34.
- Mollinga PP. 2010. Boundary work and the complexity of natural resources management. *Crop Science* 50(March–April 2010): S1–S9.
- Nasi R, Billand A and Vanvliet N. 2012. Managing for timber and biodiversity in the Congo Basin. *Forest Ecology and Management* (268):103–11.
- Ndjanyou L and Majerowicz CH. 2004. *Actualisation de l'audit de la fiscalité décentralisée du secteur forestier camerounais*. Boulogne, France: Institutions et Développement.
- Newsom D and Hewitt D. 2005. *The global impacts of SmartWood certification*. New York: TREES Program, Rainforest Alliance.
- NGO Programme Karnataka-Tamil Nadu. 2005. *Participatory monitoring and evaluation: Field experiences*. Hyderabad, India: Intercooperation Delegation.
- Ostrom E. 1990. *Governing the commons: The evolution of institutions for collective action*. Cambridge, UK: Cambridge University Press.
- Overdevest C and Zeitlin J. 2012. Assembling an experimentalist regime: Transnational governance interactions in the forest sector. *Regulation & Governance* 8(1):22–48. doi: 10.1111/j.1748-5991.2012.01133.x
- Oyono PR and Efoua S. 2006. Qui représente qui? Choix organisationnels, identités sociales et formation d'une élite forestière au Cameroun. *Afrique et développement* 31(2):147–82.
- Pearson K. 1900. On the criterion that a given system of deviations from the probable in the case of a correlated system of variables is such that it can be reasonably supposed to have arisen from random sampling. *Philosophical Magazine* 50(5):157–75.
- Picquenot K, Anquetil F, Wanders T, Durieu De Madron L, Segalen D and Langevin C. 2012. Etude de marché des débouchés des bois tropicaux certifiés sur le marché européen. Paris: TERE, AfBois and FORM International.
- Rainforest Alliance. 2012. *Protecting our planet: Redesigning land-use and business practices—25 years of impacts*. New York: Rainforest Alliance.
- Rickenbach M and Overdevest C. 2006. More than markets: Assessing Forest Stewardship Council (FSC) certification as a policy tool. *Journal of Forestry* 104(3):143–47.
- Romero C, Putz FE, Guariguata MR, Sills EO, Cerutti PO and Lescuyer G. 2013. *An overview of current knowledge about the impacts of forest management certification: A proposed framework for its evaluation*. Occasional Paper No. 91. Bogor, Indonesia: CIFOR.
- Rosenbaum PR. 2010. *Design of observational studies*. Springer.
- Schulte-Herbrüggen B and Davies G. 2006. *Wildlife conservation and tropical timber certification*. Conservation Report No. 6. London: Zoological Society of London.
- Secco L and Gatto P. 2012. Gender structures in forestry organizations in Italy and future perspectives in Mediterranean countries. *EFIMED Scientific Seminar 2012—women making a difference*, Tunis, 14 June 2012.
- Sekhon JS. 2009. Opiates for the matches: Matching methods for causal inference. *Annual Review of Political Science* 12:487–508.
- Simula M, Astana S, Ishmael R, Eliezer J, Santana JE and Schmidt ML. 2004. *Report on financial cost-benefit analysis of forest certification and implementation of phased approaches*. Yokohama, Japan: International Tropical Timber Organisation.
- Steering Committee of the State-of-Knowledge Assessment of Standards and Certification. 2012. *Toward sustainability: The roles and limitations of certification*. Washington, DC: RESOLVE and Steering Committee of the State-of-Knowledge Assessment of Standards and Certification.

- Tiani AM, Akwah G and Nguiébouri J. 2005. The fate of women in communities neighboring Campo-Máan National Park: Uncertainties and adaptations. A case study of Bifa and Ebianemeyong. In Pierce Colfer CJ, ed., *The Equitable Forest: Diversity, Community and Resource Management*. Washington, DC: Resources for the Future and Center for International Forestry Research.
- Tsanga R, Cerutti PO and Lescuyer G. 2014. What role for forest certification in improving relationships between logging companies and communities? Lessons from FSC in Cameroon. *International Forestry Review*.
- Ulybina O and Fennell S. 2013. Forest certification in Russia: Challenges of institutional development. *Ecological Economics* 95 (November 2013):178–87.
- Vandenhoute M and Doucet J-L. 2006. *Etude comparative de 20 plans d'aménagement approuvés au Cameroun*. Yaoundé, Cameroon: German Technical Cooperation.
- van Kuijk M, Putz FE and Zagt R. 2009. *Effects of forest certification on biodiversity*. Wageningen, Holland: Tropenbos International.
- Visseren-Hamakers IJ and Pattberg P. 2013. We can't see the forest for the trees—the environmental impact of global forest certification is unknown. *GALA* 22(1):25–28.
- WWF. 2010. Certification and roundtables: Do they work? WWF review of multi-stakeholder sustainability initiatives. *WWF Review*, September 2010. Gland, Switzerland: WWF.

8 Appendix: Detailed list of measured variables

Where relevant, questions were asked about when a condition or process was initiated and for what reason, in order to differentiate between those that took place before and after certification. For a condition or process that was already in place for reasons unrelated to Forest Stewardship Council certification, further questions probed whether the interviewee thought it had improved, and if so, how.

Working and living conditions, including at the *bases-vie* (employee housing)

- Does an *économat* (mini-market) exist? When was it set up and/or improved? What is its main function?
- [Indicator 4.2.2] Is potable water available? Was a well built and/or improved? By whom? When did water availability or quality (potability) last change/improve?
- [Indicator 4.2.1] What safety provisions (training and equipment) are in place? How does the company check that recommended equipment is used all along the production chain (harvesting, transport and processing)?
- What type of social insurance is available?
- [Indicator 4.1.6] Are health services available? If so, in what form?
- [Indicators 4.2.8 and 4.2.9] Are there mechanisms in place to address work-related injuries? If so, what are they? Do they cover all workers?
- [Indicator 4.1.1] How many people from neighboring villages are employed, and what proportion are they of the total workforce? In what categories are they employed (e.g. temporary vs. permanent, managers vs. other)?
- [Indicator 4.6.3] What salary ranges exist (as a proportion of the minimum legal wage or collective agreement in each country)?
- What type of housing is provided (mud, timber or concrete, metal or other roofing material)? Are there written procedures for house occupancy?
- [Indicator 4.1.2L] How does the company interpret the term “young workers” (is it based on a legal, ILO, or other definition)? Do special contracting conditions exist for such workers?¹⁵
- Is there a union, or other type of associative body, in the company?

Institutions and benefit-sharing mechanisms adopted by logging companies (those covered by indicator 4.1.7L — “The forest manager shall contribute to the development of the local economy” — but excluding salaries and wages paid to local workers, which are considered in the previous section)

- What is the level of knowledge about the status of the forest management unit (e.g. whether it is certified or has a management plan approved, or any other discussion held with the local population regarding possible constraints and advantages derived from such status)?
- When did the first contact between a logging company and the village occur? When did the first contact with the current company occur?
- Are there institutions (e.g. platforms or associations) in which regular interactions and discussions occur between the company and the local population? Are they active or dormant? Were they established or have they been improved by the current company?
- How are institutions governed? Are there written procedures (e.g. statutes)? Are members elected or appointed? Are external parties admitted to the institution? How often are members changed?

15 These questions are intended to check not only the avoidance of child labor but also whether policies are in place to facilitate employment for young people.

- What type of benefit-sharing mechanism is in place (if any and if considered as such by the company)?
- What types of redistribution are carried out? What amounts of money and/or types of in-kind contributions do they involve? How are they distributed, and how often?
- About how many people benefit from the redistribution scheme, directly and/or indirectly (e.g. households of the direct recipients)?
- Is there any evidence (acquired through interviews or documented during fieldwork) of positive or negative impacts of redistribution?
- [Indicator 4.1.5] Are there education opportunities in addition to those normally provided by state-run schools?
- What type of infrastructure is provided (e.g. electricity, roads or transportation) in addition to that provided by the state? Is the cost of building and/or maintenance covered by the company? Is this infrastructure currently operational? Who is in charge of maintenance?
- [Indicator 4.1.10] Apart from direct financial benefits, are there specific schemes in place for other types of financial benefits (e.g. micro-credits or subcontracting opportunities)?
- Is any cultural asset provided or maintained by the logging company (e.g. a library or place of worship)?

Mechanisms in place that affect customary rights to forest resources

- Have rights been clarified and/or strengthened after the granting of the logging concession to the current company? For certified concessions: What changes after certification?
- [Indicator 4.5.1] What mechanisms exist to compensate local populations for loss of or damage to property, resources, health and livelihoods?
- How are rights to conduct agricultural activities affected by the presence of certified and noncertified FMUs?
- How are rights to game affected by the presence of certified and noncertified FMUs?
- How are rights to non-timber forest products affected by the presence of certified and noncertified FMUs?
- Protection of and access to cultural sites?
- For all of the above, is there enforcement of exclusion of local people from set-asides and buffer zones (if any), or are there special rules for the management of such zones (if any)? How are any such rules negotiated with, and perceived by, the local population?

CIFOR Occasional Papers contain research results that are significant to tropical forest issues. This content has been peer reviewed internally and externally.

This Occasional Paper assessed the social performance of nine forest management units (FMU) certified by the Forest Stewardship Council (FSC) and compared it with the performance of nine similar noncertified FMUs in Cameroon, the Republic of the Congo and Gabon. Results showed that the longer one company remained in one place, the deeper social relations with the neighbouring population became. This in itself is conducive to an environment in which there is less conflict between the local population and logging companies. However, it is usually only after companies decided to pursue certification that several practical social improvements occurred. In particular, in certified FMUs, this study found better working and living conditions for workers and their families; more inclusive and better governed institutions for negotiations between the local population and logging companies, except with regard to conflict-resolution mechanisms; better managed and more effective benefit-sharing mechanisms; and innovative ways of dealing with problems related to infringement of customary uses.

The complex historical and political-economic reality in which certification has developed in the Congo basin might well make issues of attribution and causality difficult to clarify. Yet results help establish a clear boundary that currently exists between certified and noncertified timber: The former is sourced in FMUs that implement not only legally mandated social standards but also voluntarily adopted ones that are superior and more effective.

There should of course be no complacency from the FSC or logging companies with certified FMUs in comparing themselves with the 'bottom,' as the logic of the FSC is to reward more responsible forest managers who are assessed against ever-evolving standards, irrespective of the quality of national legislation. But one should also not forget that companies with certified FMUs in the study countries are competing less against a theoretical global logging company than against their neighbours, who daily produce the same species and sell on similar markets, albeit with much lower investments, especially those targeted to improve social performance. In this very competitive and uneven playing field, and with the scarce price premiums obtained so far, the evidence presented indicates that certification in the Congo basin has been able to push companies toward remarkable social progress.



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