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PEOPLE, RULES AND ORGANIZATIONS SUPPORTING THE
PROTECTION OF ECOSYSTEM RESOURCES (PROSPER)

BEST PRACTICES FOR COMMUNITY-BASED LOW IMPACT TIMBER HARVESTING IN LIBERIA

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November 2016

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BACKGROUND

In May 2012, Tetra Tech was contracted by USAID Liberia to implement the PROSPER Program. The goal of the five-year program is to “introduce, operationalize, and refine appropriate models for the community management of forest resources for local self-governance and enterprise development in targeted areas.”

That goal is to be achieved through the accomplishment of three major objectives:

- Expanded educational and institutional capacity to improve environmental awareness, Natural Resources Management (NRM), biodiversity conservation, and environmental compliance
- Improved community-based forest management, leading to more sustainable practices and reduced threats to biodiversity in target areas
- Enhanced community-based livelihoods derived from sustainable forest-based and agriculture-based enterprises in target areas

With assistance from the international community, Liberia has developed a strong legal framework to support community forestry, and is supporting pilots in 11 community forests in Nimba and Grand Bassa Counties. PROSPER and its predecessor project, the Land Rights and Community Forestry Program (LRCFP) have worked extensively on community-based livelihoods in and around community forests by building a greater understanding of the income-generation opportunities of non-timber forest products, and through work on sustainable agricultural practices. Community forestry is in its nascent stages in Liberia, and its potential benefits to communities and to Liberia’s development generally are not understood. More importantly, community forestry could play a critical role in the management of Liberia’s forestry sector and serve to balance a sector that is currently managed largely for and by foreign commercial interests through concession agreements. Additional enterprise development opportunities may exist in and around community forests related to sustainable wood-based enterprises.

However, these opportunities are poorly understood in terms of:

- the existing natural resource base;
- necessary rural infrastructure (transport and energy);
- technical and administrative human capacity to develop and manage rural forest product enterprises;
- value-added products;
- economics of supply and demand; and
- required investment (capital and knowledge).

In Liberia, commercial timber concessions are the primary means of exploiting timber resources. However, the opportunities for communities to participate in these markets are poorly understood. The

dynamics of domestic timber production and opportunities for micro-scale harvesting, processing, and trade are not widely understood within the development community.

While PROSPER has been promoting forest management mainly based on the use of non-timber products, different circumstances have led to the need to incorporate the potential for timber product management. To be able to properly harvest forest products, the operations must incorporate appropriate planning practices, and forests must be managed based on best applicable practices to promote and achieve the sustainable management of forests.

Some prior efforts by the PROSPER Project have been aimed at training staff and community members on the appropriate procedures for planning forest management operations. In this sense, important efforts have been carried out in order to train personnel on implementing forest inventories and censuses and thus obtain the information required for planning management operations.

This report is part of the efforts to promote forest management that considers low impact timber production, among the communities assisted by PROSPER as an alternative to improve their living conditions and conserve the forest in the long term.

The report provides information on the best practices that should be incorporated into forestry activities in order to start on the path towards sustainable management and to ensure that forests are sustainably managed in the future.

As detailed below, forest management is a process and the main point to eventually attain sustainability is to start that process. If sustainability is viewed purely from a scientific or theoretical standpoint, on-ground action may never start, as all the necessary information and infrastructure to assure sustainability of the operation may be insufficient. This PRACTICAL guide proposes that management may be initiated through a set of basic activities, that may not be all necessary, but that will enable the commencing of the process.

It is likely that looking for an ideal situation may lead us to fall in that never ending discourse on what sustainable management is and is not, while the forests continues to be degraded through deforestation; as a result of stakeholders resorting to uninformed destructive short-term economic activities. It is possible that at the onset of the process not all the scientific or theoretical requirements may be complied with, not due to unwillingness to do so but simply because the conditions to fulfill them are not there.

This report constitutes a practical guide for forestry technicians, forest stakeholders, community leaders, and government officials involved in work with communities. The report has been developed using plain language in order to facilitate its application and promote its use. The extent to which the different topics are dealt with is based on the author's experiences in Liberia in 2014, 2015 and 2016, including the field work and the needs identified during this field work. Also, the necessary level of detail and the way of presenting the topics have been discussed with the PROSPER staff and implementing partners that are in direct contact with the end users of this product.

This report has a sole and clear purpose; to promote forest conservation through responsible use in order for the forest to fulfill the functions required by its owners and users. Forest conservation is not pursued just to protect the forest, but instead to benefit the communities that need to use the forest

and have preserved it so far and are, therefore, the main stakeholders for its conservation. Forest conservation cannot be considered without utilization or not taking into accounts the communities living in or around the forests.

This document refers to the best practices applied to the processes to start and implement Sustainable Forest Management (SFM) focusing on local communities, emphasizing timber and non-timber products; the former as they have the best potential to increase immediate socio-economic benefits and the latter due to its connotations for the current livelihoods of the communities in Liberia.

The term “immediate”, however, does not mean that we are to forgo long-term benefits such as wildlife and environmental services that are also part of SFM. Experience with this type of processes suggests that if we help local communities in starting actions in search of quick financial returns through the two products mentioned above, good incentives will be in place for the communities to continue learning from SFM and together with their social interaction processes, define and design high-value relationships with the market, implement suitable mechanisms to participate and collectively manage the benefits accrued, increase their technical capabilities to sustain SFM in a competitive way, embark in new processes to add value to their products or services, and learn to avoid or resolve conflicts, among others.

Reality, in this case, is simple. We can either start a process to organize how the forest is used in a process that includes some basic planning activities that can be carried out with the communities, or instead follow a course of NOT doing anything as we may:

- not have all the necessary information
- lack all the capacities needed in the field
- not know the impacts that forest use may have, or
- lack all the information on how to manage forest resources, both timber and non-timber, and allow the forest to gradually disappear while we try to obtain all the necessary scientific knowledge required.

As stated above, the main consequence of NOT doing anything may be the disappearance of the forest in the very short-term.

SOME GENERAL CONCEPTS

1.1 WHAT IS SUSTAINABLE FOREST MANAGEMENT?

Definitions of sustainable forest management are as abundant as opinions on whether it is possible or not to implement it.

In the text box there is an interesting definition accepted by the UN General Assembly. It is noteworthy that SFM is defined as a dynamic and evolving concept; it is not static and it may not be attained through a specific action or in a determined time period. Also included in this definition is the need to consider economic, social and environmental aspects. Forest management needs to be implemented for the people, for the current and future inhabitants; it may not be defined or implemented if the stakeholders are not taken into account in the first place.

SFM implies using the forest in a responsible fashion and this has direct relevance for the harvesting of timber and non-timber forest products, as well as, in special circumstances, the use of wildlife, as well as for the mechanisms or processes aimed at reaping the benefits from the environmental services provided by the forest. Thus if we want to go into more detail regarding best practices for SFM, it is necessary to establish, first, the phases needed to develop a SFM plan, second the potential products (goods) and/or services that are to be harvested, and finally who is going to be in charge of the operations needed for SFM and its outcomes.

It is worth noting the best practices to develop a SFM plan and also to point out the best practices for implementation. Both processes become even more complex if we add the “responsible SFM” variable, as the processes to develop and implement a plan by the forest concessionaire will be significantly different from those used by a local community. Complexity will increase as we add more than one product, more than one service, or we demand that more than one goal stated in the SFM plan is to be complied with.

For the purposes of this report, sustainable forest management is linked to the following concepts:

1. Sustainable forest management is a key tool for forest conservation. And here we mean conservation, NOT preservation, as management implies responsible forest use.
2. Sustainable forest management is NOT focused on a few species or a few products; management should aim at managing all forest resources as a whole. Thus, the potential impacts of forest management are spread out.
3. Sustainable forest management may start whenever the stakeholders decide to do so; basically a shared decision is made to start the process and go forward, with support from the community, its leaders, and the users.

In December 2007, the General Assembly of the United Nations adopted the most widely, inter-governmentally agreed definition of Sustainable Forest Management (SFM):

“Sustainable forest management as a dynamic and evolving concept aims to maintain and enhance the economic, social, and environmental value of all types of forests, for the benefit of present and future generations.”

(Source: UN 2008, Resolution 62/98)

4. Management does not necessarily start with the management of all the resources in the forest and may be initiated with timber production or the harvest of just one non-timber product; or an inventory of available resources may be the sole action taken and a decision made to protect the forest for a few years until some harvesting might eventually take place. The latter scenario may be true for degraded forests that have been harvested without any controls and on several occasions before any thought was given to managing them.

1.2 GRADUALNESS

Prior to defining the best practices that we are to apply in implementing forest management, it is important to point out that management is not an instant solution. Forest management is a gradual process and, as such, is made up of several different elements that lead towards sustainable management. Actions towards sustainable forest management may start at any time and—depending on the conditions under which the work is being undertaken—the process may be implemented in a more or less rapid fashion.

Gradualness implies degrees. It also implies that we can take several steps to reach a goal or objective. Community forest management can be started just with an agreement or decision taken by the community to manage their forests. Starting from this decision, a set of activities that contribute to the overall objective of sustainable forest management can be incorporated and complied with, gradually.

If the process is not gradual, negative effects may be caused—especially at the level of community forest management, as brusque or radical changes that go against tradition may give the perception that management is difficult or impossible to attain. As a result, such changes ultimately may have the opposite effect, leading to the disappearance of forests.

Gradualness also provides stability and sustainability over time as it leads to the implementation of activities in a gradual and deliberate fashion, resulting in more solid and stable processes.

1.3 ADAPTABILITY

The activities or best practices entailed in forest management should match the capabilities and conditions of the actors implementing the processes. We cannot compare the implementation capability of a private company having unlimited resources to the capability of actors in community forest management.

Sustainable forest management not only needs to be adapted to local conditions, but also should be adapted to the characteristics of the forests in which work is to be carried out. For instance, forest inventories should match the products those forests yield, giving more emphasis to timber or non-timber products as the case may warrant.

Adaptable management lends itself to adjusting forest owners' command and approval structures. This, in turn, allows for incorporating management efforts as activities that are additional to everyday community life.

1.4 PARTICIPATORY

It is imperative for forest management to be based on a participatory process. Both at the company and community management level, the decision to manage forests have to be made as a group.

After a participatory decision is made at the group level, there is no need for all community members to take part in management. The greatest participation possible is desirable, but no member of the community is to be forced to participate in an activity that he/she has no interest in. However, a participatory go-ahead to start the process, normally, implies monitoring and supervision activities on the part of local residents, which lead to reporting and feedback to the whole community.

In summary: Forest management is gradual. It is not abrupt, and does not imply dramatic changes to normal execution activities. It adapts itself to the specific resources and conditions of the forest, and the willingness to implement. It implies a participatory decision taken jointly by the community, even if implementing it later on may not entail the participation of each community member.

1.5 TIMBER AND NON-TIMBER FOREST PRODUCTS

SFM is based on gradual processes to reach goals within reasonable timeframes according to the context. Ideally, SFM should take into account the harvesting or use of the most goods or services in order to maximize benefits for the operators. We should keep in mind that the forest contains a wide variety of non-timber products, as well as timber products and environmental products with a financial value that may translate in significant income for the community.

Financial value, in general, is the result of linking a product with its market price, but in no way it reflects the feasibility of the good or service being sold either in the domestic market or international markets. For instance, if one ton of sequestered carbon is worth USD 3 in the market, a community owning 1,000 ha and having 50 tons/ha would have a potential financial value of 150 thousand dollars. The issue here is not that the forest lacks financial value, the difficulty lies in finding someone willing to buy the service. The same is true for non-timber products; the value provided by medicinal plants may be of interest to the community, but it will not be relevant as long as specific buyers are not found or if the product is quite abundant and can be found elsewhere at reduced prices.

It is clear that, conceptually, SFM is not necessarily related to financial value. However, a SFM operation based on a plan involving commitments for the use of products or the utilization of services demands actions by the community with costs that have to be covered by someone. There is no “free lunch” in these processes. For instance, when a community decides to protect its forests from outside encroachment, it requires staff willing to temporarily forgo other productive efforts for the collective good, needs food for the staff involved in control and monitoring operations, as well as basic medicines to deal with emergencies, and means of transportation to reach the sites under control, together with security equipment to face eventual dealings with trespassers. All this has a cost and the community requires funds if it wishes to solve these issues in the long term.

Unfortunately, SFM is related to the need to provide short-term financial benefits for the communities and, therefore, managers in charge of implementing SFM design and implementation should focus on the products or services providing the quickest returns within the framework of sustainability

prescriptions. Obviously, this does not mean giving up on the integrated use and utilization of the forest. However, based on the principle of gradualness mentioned above, it is essential to understand that timber products have the most potential for a swift connection with the market.

Starting with timber products is not as easy as it sounds, but doing it correctly and based on the best available practices provides several advantages for the community, including:

- a. It improves their capabilities for undertaking profitable productive enterprises from a financial, social, and environmental standpoint.
- b. The capability to relate with market actors, mechanisms, and instruments is clearly increased.
- c. Learning processes are established related to planning and social interaction, including eventual conflict resolution.
- d. Specific opportunities are identified to include other timber and non-timber products while complimentary economies are sustained.
- e. Value is added to the extent that basic operations are sustained.

1.6 WHAT IS NEEDED BEFORE SFM IS PROMOTED OR INITIATED

1.6.1 What is the current forest status?

The first and indispensable practice to start a SFM process is to know the status of the forest, identifying the key causes, both internal and external, that have led to such condition. Generally speaking, not everything is due to the market, as market demand may drive forests users to harvest natural resources, yet it is very unlikely that the demand for forest products or services will drive the users to implement specific practices. Organization structures, commercial mechanisms, technology, the schemes for accessing collective goods and services, or state regulatory systems, among others, are the factors that ultimately constitute a network that generates a context for management and includes the following elements.

1.6.2 Forests and resources

Without any field work and a minimum level of financial resources, it is possible to gather general information in order to establish the condition of the forest and its resources. To this end, a rapid assessment can be carried out of the following basic features:

- Zones and forests by type of use;
- List of environmental issues stemming from former or current uses;
- Ways in which the resources are being used.

The zones and forests may be obtained using public access and free satellite imagery including Landsat or Google Earth. For this, we may look at publications or secondary information provided by NGOs, universities, or government institutions.

Why the emphasis on this information? The objective is to be able to present to the community already existing information and for them to understand, at a basic level, the status of their resources in order to perceive the existing threats and risks.

1.6.3 Local economy and forest resources

The local economy is always linked to the forest or forest lands. Traditional uses based on farming and cattle husbandry depends on the environmental services provided by the forests and associated services. For instance, for agricultural production to remain stable, forests that maintain the micro-climate are necessary, as they provide water and moisture for crops, protect the land from wind and water erosion, sustain micro-fauna, harbor wildlife that controls pests, etc. Additionally, forests constitute the source of resources including firewood, charcoal, fibers, oils, resins, seeds, leaves, fruits, wildlife, water, fish, etc. that are harvested by the communities for their livelihood.

Before starting to implement SFM it is crucial to understand, in a rough but effective way, the relationships existing between the forest and the local economy in order for “the community to be aware of the concrete and measurable benefits provided by the forest in order to assess losses in the event of its disappearance.

This awareness, in the first place, will be the result of accessing data and secondary information, as well as of structured interviews conducted with the community and neighboring settlements. In general, although each settlement may have its own particularities, it is very likely that all of them experience the same level of connection between the forest and the local economy.

1.6.4 Options and limitations of the regulatory system

The regulatory system has two features; first one is related to paperwork, access times and costs to obtain permits from the forest authority and, second is taxes and formal requirements such as accounting, book registry, declarations, payment rules, etc. It is important to properly interpret the legal regulations, looking into their effects on the collective management of forest resources.

Frequently, SFM is initiated without understanding the rules governing formal use and the transactions costs or hidden costs end up undermining the benefits for the communities. For instance, the sole obligation of keeping accounting books implies the need to hire an authorized accountant, frequent trips for declarations, as well as incurring in associated costs to manage the inventories of harvested resources.

When it comes to forestry permits more issues arise as, for instance, the hiring of technicians is required, as well as the development of maps using computer equipment whose operation goes beyond the capabilities of community members. Also, technical reports may be mandatory, as well as harvesting fees that have to come out of the resources of local communities.

1.6.5 Collective organization and underlying structures

Collective forest harvesting is related to a set of tasks linked to group decisions taken through local organizations. It is essential before promoting SFM processes to answer the following questions in order to understand the types of production models and their associated risks.

- How representative and legitimate is the organization?
- What is the level of stability of the local authorities?
- What are the features or circumstances attracting representatives or leaders?
- Are there any rules in place at the organizational level that facilitate the existence of production units?
- How are the production units affected by the organizational structure?

1.6.6 Social networks and influence on access

Local livelihoods are sustained by social networks that include, first the family, second the extended family, third the community, and fourth community organizations. At the same time, these networks are fed by diverse interests related to local representation and the ups and downs of community politics. More remote communities show increased cohesion among members; apparently this is the result of the lack of basic services and the strength needed to attain their collective development goals.

Conversely, those communities with closer ties to the market show less cohesion. Frequently, social networks explain issues of access inequality in terms of the forest benefits, particularly when power groups exist within the community.

Prior to starting a SFM process, it is essential to understand these networks by developing social maps that show the connections among families, family groups, community leaders, other groups and tradespeople, or among communities, emphasizing the interests or values driving these connections.

Social maps and connections provide the means to plan strategies to facilitate agreements among community members in order to design and implement SFM.

1.6.7 Threats and risks for SFM

SFM is a concept that embodies the desire to conserve the forests, biodiversity and related environmental services in a context of plurality and effective participation of the local communities. This concept is legitimate and praiseworthy, but attaining it is not an easy task as several variables exist, both within and without the community. Risk may be understood as the potential damages (or their likelihood) that the SFM process may experience, and the threats refer to the actions or potential circumstances that may result in risk.

Prior to promoting and starting SFM it is imperative to carry out an assessment of the threats and associated risks, in order for the community to understand them. The following cause-effect format may be used as a guide, specifying the source of the threats.

Threat	Source	Risk for SFM
Inappropriate fire use by neighboring communities or the community itself		Forest fires that destroy the goods and services provided by the forest with subsequent repercussions for the community
Overhunting of wildlife beyond allowable limits for population sustainability		Upset biological cycles for specific non-timber products and timber species
Land grabs of community forest areas by speculators		Deforestation of forest areas decreasing current and potential benefits for the community
Absence of property rights and specific boundaries between neighboring communities		Obstacles for accessing specific goods or services
Compliance of established norms to sustain entrepreneurial initiatives		The costs of compliance negate financial profitability of SFM and, thus, the community cannot share benefits, with adverse social scenarios emerging
Lack of trust in local authorities		Potential for outbreaks of social conflict

The goal of carrying out this type of exercise is to project actions that may mitigate or avoid the risks of each threat to SFM.

1.6.8 Facilitating process ownership and buy-in

It would be wrong to start from the hypothesis that the community wishes to embark in a formal process to sustainably manage the forest, based solely on the availability of external funds, whether from cooperation agencies, the State or private firms. Often, communities feel the need to improve their income through the use of the forest's products or services, as well as through the jobs that may be created. However, this may not be a legitimate avowal of interest. One thing is for willingness to exist, and another is to genuinely own a project.

Ownership is based on understanding the problem and is relevant for the final decision to start activities independently from financial and social variables. Ownership builds the foundation for the decision and signifies a commitment of individual and collective participation in the design and implementation work for SFM.

In order to understand the situation the community needs to perceive the risks and threats of doing or not doing something to conserve the forest, as well as being aware of its current circumstances. Not doing anything may result in forest degradation taking its course, but people need to be aware that doing things wrong may accelerate the rate of forest degradation. When local SFM activities lack order, transparency, participation and clarity in terms of fair access to benefits, the organizational structures of

the communities suffer. If this happens, community members may think that SFM does not work, resulting in a free-for-all scenario where inefficient, destructive and environmentally unsound forest harvesting becomes the norm.

Awareness is the first step, the second is ownership, and the third is related to collective buy-in. SFM design processes cannot take place if this buy-in does not exist. Given the features of the community social networks, the process to reach collective buy-in may be a short one when the community already has experience with prior production initiatives and understand the issues and mechanisms to solve them based on social arrangements. But, it may also take years, many in some instances, especially if representation and legitimacy are lacking among the leadership and organizational structures.

The general rule is to facilitate information, guidance and processes for the community to make an appropriate decision within reasonable time periods, and never to start a process if collective buy-in is not achieved and translated into formal agreements.

1.6.9 Promoting participatory processes and road maps

Community members know their forests and resources quite well, and they are well aware of the interaction between them and the associated environmental services from the forest and the links with the lands they subsist on. Sometimes technical staff are under the impression that having maps developed using geographic information systems gives them a good perspective of the whole scenario, but what really makes the wheels turn for SFM is the knowledge provided by the community.

For instance, the most seasoned community members know several benefits stemming from trees both for people and wildlife and thus can teach us about the role of different species within the forest and how they provide conditions to sustain biodiversity. They understand the complex world of non-timber forest products in terms of their medicinal properties, and their role as food for wildlife. Given their history of beneficial association with nature, community members can rapidly grasp the forest's environmental services to benefit soils, watercourses, and rainfall or, even, how its eventual loss may affect agricultural and cattle production in lands allocated to other uses.

SFM requires a world of innovation starting from the knowledge of forest dynamics. For instance, due to the associated costs, forestry practitioners have not been able to develop efficient scientific methods to understand these dynamics. Yet, community members have passed their knowledge of forest behavior from one generation to the next. While practitioners determine cutting cycles using mathematical models, local people may very well estimate the levels of forest recuperation based on evidence from their agricultural areas used 30 or 40 years ago with low-intensity technologies and rotation.

Once buy-in exists for the process to start SFM, the next step is to develop a road map listing activities, timeframes, and people in charge, as well as indicating the available human and financial resources. This road map should allow translating the expectations not only of technical activities but also of the mandatory participatory processes for all the stages of SFM. Technical information is vital in order to design interventions or harvesting operations, but the processes needed to make decisions based on the data collected must follow the relationship/behavior rules of the community in order to maintain ownership.

We should emphasize that those in charge of undertaking SFM are the members of the community. If too much emphasis is placed on technical instruments emerging from regulations, local people may ignore them if agreements are not in place that are the result of participatory processes. These agreements translate in processes that maintain social cohesion and drive SFM towards success.

1.6.10 Promoting mechanisms for conflict resolution

SFM does not take place in calm environments. The tide grows to the extent that individual interests are affected as a result of collective decisions. At the state level, communities are represented by maps, but at the community level the maps translate into behaviors stemming from the social networks that are formed. Generally speaking, land use and the utilization of many forest resources occurs based on physical divisions within the community that practitioners may not be aware of during the stages prior to implementing SFM.

Internally, families have areas for use allocated to them, with some communities establishing the boundaries for non-timber products harvesting for each family. Nevertheless there are people that, capitalizing on the lack of collective rules, sell trees and timber products without a permit, or hunt wildlife selling the meat and pelts on the sly. From an external perspective, the community is a whole, yet internally the different members may feel they own some areas. The worst may happen when these individuals are also part of the organizational structures.

SFM is an instrument of order and will certainly create conflict within the community. These conflicts are the result not only of issues existing prior to the implementation of SFM, but may also arise during operational work, in the commercial negotiations of the products or services obtained, in administrative work and benefit sharing, or when accountability for poor management practices is required.

During operational work, conflicts usually stem from the lack of appropriate methods for the selection of forestry workers. During negotiations the most frequent conflicts are related to lack of trust in the prices agreed by SFM representatives. In administrative matters, lack of transparency when it comes to expenses and income generate issues that are almost permanent. In regards to benefit sharing, the absence of instruments that offer clarity for individual benefits is the source of collective disagreements.

Prior to starting SFM activities, it is vital to develop conflict resolution mechanisms, assessing first which may be the most significant. One conflict resolution mechanism involves the use of the following elements.

- i. A list of key conflicts and the most likely to occur
- ii. The policies and methods to be used in order for a resolution process to take place
- iii. The organizational body in charge of dealing with complaints and conflicts
- iv. Local norms needed to emit a final ruling
- v. Community penalties for those failing to fulfill the final ruling.

Mechanisms for conflict resolution should be light to the extent possible, and make use of existing organizational bodies and structures.

BEST MANAGEMENT PRACTICES

Below are a total of 24 best practices on sustainable management of forests. These practices are ongoing and gradual, and the speed to use them may increase according to the existing capabilities and resources of the community or company.

Evidently, it would be best if all these practices are implemented, but they may be adapted to the specific conditions, and some of them may be expanded over time; however, it is important for as many of them as possible to be implemented in the shortest time possible.

The following is a description of each of these practices, with some being considered essential and mandatory in order to start a management process. The others may be incorporated on a gradual basis according to the capabilities within the communities. The order, in which these practices are applied, may change according to the specific conditions associated to the community. Similarly, depending on the specific conditions, some practices may receive more attention or become a priority, for example, the actions taken to resolve conflicts may be more important in some areas and less in others.

1.7 ESSENTIAL PRACTICES TO START THE MANAGEMENT PROCESS

The set of best management practices needed to start the path towards sustainable forest management is summarized in the text box.

These practices are mainly related to forest management planning activities. They are to be implemented prior to starting any forest resource harvesting activity.

Accordingly, it is necessary to:

- a. **Have appropriate maps:** These maps should include as much information as possible on the different types of forest cover, accessibility, towns, villages, obstacles, key locations, and areas to be avoided, areas of sacred value, HCVAs¹. It is not possible to plan the management of a forest whose features are unknown and maps allow having important features and information in a nice graphic summary.

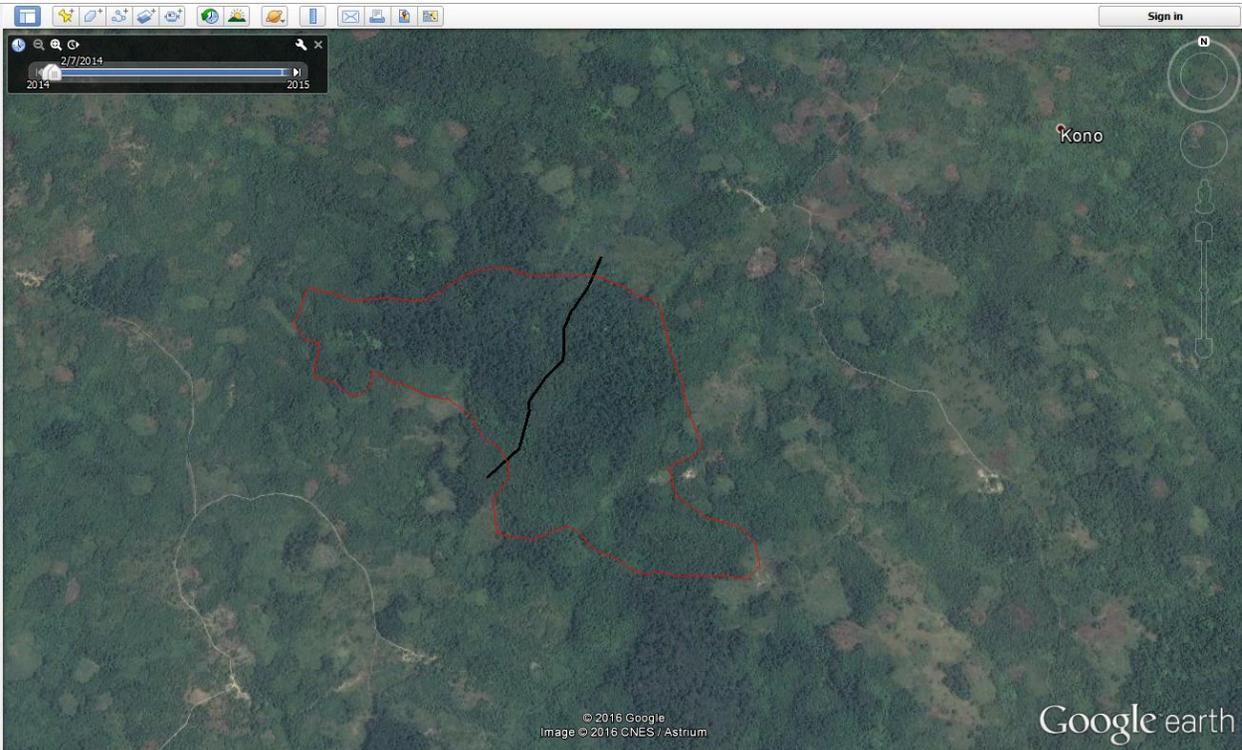
Figure 1 shows the basic information needed for Donnie forest. It shows different types of land uses (forest, agriculture), and if work is done with the community members, they would probably be able to identify HCVAs, or areas that might be sacred or have other special values to forest owners. It is also important to include the boundaries of the community or the community forest.

The base map for planning forest management may be prepared based on a satellite image analysis. If satellite imagery is not available, information from the Internet may be used from sources such as Google Maps or Google Earth (Figure 1). The analysis of historical information

¹ High Conservation Value Areas (HCVAs) are natural habitats, which are of outstanding significance or critical importance due to their high biological, ecological, social or cultural values.

on maps or satellite images is also an opportunity to identify changes in land use and threats to forest cover.

Figure 1. Basic map of Donnie forest



- b. **Carry out forest inventories:** It is not possible to plan forest management activities if resources are unknown. After a map is developed, forest inventories need to be implemented in order to collect relevant information on forest resources and of other factors the management plan should consider. The forest inventory must be a survey of all forest resources that have been identified with some potential for management or have been listed as important resources by the community, and should consider timber and non-timber forest products.



Figure 2. Some examples of non-timber forest products that could be inventoried²

- c. **Have an approved forest management plan:** Based on the forest maps and inventories, a management plan is developed based on which activities will be carried out in the forest. Based on the maps and the forest resources inventory, the zoning the forest can be completed. This zoning, for example, will determine which areas will be managed for timber, which are areas of wildlife protection or which areas are defined only for the production of non-timber forest product. The management plan is the key document for starting to manage a forest. This document summarizes the long-term objectives and actions that are to be carried out in the forest. It is prepared for a period of at least ten years, but may be subject to revisions according to the information that is generated during its execution. The plan needs to be developed with the most participation possible by the community, and needs to be approved by the community as well as by the relevant regional- or national-level authorities. This community buy-in is key to facilitate the implementation of the management plan, as well as to decrease pressures that may emerge due to changes in land use. The forest management plan encompasses a larger land area where the communities

² From: Local Non-Timber Forest Products (NTFPs) Market Analysis/Trade Network Survey Conducted in Blei, Gba, & Zor Communities Forests in Northern Nimba

carry out other economic activities and, although participatory development of the management plan contributes to organizing land use within the communities, it is NOT necessarily a land use plan and, thus, in most cases it is circumscribed to only one part of the territory.

- d. **Environmental assessments:** Depending on the scale of forestry operations, as well as the forest management plan, an environmental impact assessment may be necessary. Some argue that the management plan in itself is an environmental assessment, as each proposed activity includes methods for carrying it out and additional activities that need to be undertaken to mitigate any negative effects. Other authors point out that for larger scale operations it is necessary to conduct an environmental and social impact assessment as well.
- e. **Develop operational plan on an annual basis:** the management plan is a strategic document, prepared for a long-term Implementation over 15 or 20 years, and covers the total area. Therefore the annual plans seek to define in greater detail the activities to be carried out each year in some specific sections of the forest. This is called operational planning, and it is done with greater detail, as it is based on more-detailed information, such as the detailed inventory of the products to be harvested (trees, rattan, xylopia, etc.). These annual plans also allow adjustments to the management plan without revising the entire general plan or prepare a new one. Annual operational plans can be prepared for communications, training, harvesting, protection and fire control, etc.
- f. **Know and abide by the plans to be implemented:** Each community member needs to know that a management plan or annual plan exists and that its specifications are to be abided by. Thus, the participatory nature of the development and approval processes is important. There is little use for a management plan if community members promote illegal harvesting or tolerate illicit activities. This practice goes beyond informing and providing information. The development and implementation of a management plan requires a commitment from the entire community in terms of complying with and abiding by what the management plan and the annual plans determine.

1.8 PRACTICES FOR IMPLEMENTING A MANAGEMENT PLAN

These are best practices that should be put into practice when starting the implementation of the forest management plan. Usually, the main rule for the execution part should be to implement in the field those activities projected both in the management plan and annual operational plans.

- a. **Prohibiting hunting for commercial purposes:** Hunting for commercial purposes is prohibited, as well as hunting by people not belonging to the community. Hunting to feed forest workers is not to be allowed under any circumstances. The fundamental principle is that forestry activities must not, under any circumstance, encourage hunting and, on the contrary, should promote wildlife conservation, as one of its main goals is to promote forest conservation.

Hunting wildlife is a legitimate right for communities and, therefore, no one can restrict this use as long as it is carried out within the framework of local practices allowed by the community. A

standard practice stemming from this is to allow hunting for subsistence in community forests. The emphasis is on subsistence as it is the only purpose allowed and as such each community member may use his or her available means to provide food for their family.

One of the conflicts stemming from implementing SFM is that benefits are increased for some members of the community that are hired as forestry workers. Wages and meals in exchange for work are part of these benefits, as well as transportation to the harvesting sites. Therefore, in practice, those receiving increased benefits acquire an advantage over those remaining in the community.

One of the best practices to maintain fairness and, at the same time, avoid conflicts among community members is to ban hunting by forest workers. Otherwise, they may increase hunting pressure to levels no longer sustainable. But, it should be clear that this hunting ban does not affect at all the legitimate access to wildlife for subsistence purposes, nor it means that wildlife may be subjected to sustainable management.

Wildlife use and management should be based on specific technical and social criteria; however, the purpose of this document is not to go into details on the best practices for this resource, recognizing that there are very little experience, knowledge and success stories in managing wildlife for commercial purposes.

- b. **Selecting and marking products to be harvested:** Prior to starting harvesting operations, the annual plan (in which the level of harvest was established) has to be reconsidered in the field, and the products to be harvested clearly marked. The purpose of this practice is not only to perform what was planned, but also to reduce the chance of making mistakes and harvest products or in areas that were not supposed to be harvested. For example, for timber harvesting, a 100% inventory of all trees to be harvested, must be done. These trees are clearly marked in the field and ways to complete harvesting and the resources needed are clearly specified. If the annual planning has identified the harvesting of NTFP, the location of such harvesting should be clearly marked in the field. .
- c. **Appropriate staff training:** All staff involved in implementing the management plan and the annual plans has to be trained according to their different functions. This training will include not only knowledge of the plans to be carried out, but also the best techniques needed to undertake work in the field. One of the first trainings to be done relates, precisely, to the implementation of best management practices.
- d. **Tree felling that does not obstruct watercourses:** When the management plan and the annual plan determines the harvesting of trees, under no circumstances should a tree felled for harvesting fall on any watercourse. This best practice is aimed at reducing the impact of the harvest on other forest resources, such as good-quality water. During the preparation of the annual operational plan, any regulation that defines protection areas (where no harvesting is done) must be considered, like the buffer zone with no harvesting that must be enforced along the watercourses.

- e. **Control repeated entry to the same harvesting area:** The harvesting level and places where the harvest will be conducted is established in the management and annual plans. Unless the management plan explicitly allows it, repeated entry to the same harvesting area to harvest products that were not harvested in due time is prohibited. Once a section of the forest has been harvested, it should enter a fallow process to recuperate and regrow until its harvesting cycle is completed (as established in the management plan).

Overharvesting and its negative consequences can occur with any forest product, it does not matter if it is timber or vines, and if harvesting plans are not followed the forest production capacity can be destroyed.

- f. **Disturbed areas are treated properly:** Any area that as a consequence of the harvesting operation, has been severely disturbed, must be treated so it can recover soon. For example, areas used for camps or log landings are areas where loading activities take place and are exposed to more traffic and impact, thus needing special treatment. If the soil has been severely compacted, it should be removed or scarified in order to promote the growth of natural regeneration. If there is potential runoff, barriers or structures that help in mitigating damages need to be established.
- g. **Efficient and integrated forest use:** Sustainable forest management relies on using the greatest number of species and not only on those most popular or demanded by markets. Therefore, specific actions should be taken, such as searching for new markets or customers to allow for a diverse forest harvest, rather than one that focuses impact on just a few products or species. Also, precautions are needed to reduce waste and poor utilization of harvested resources.
- h. **Harvesting rates:** The harvesting rates, for timber or non-timber forest products, defined in the management plan and implemented in the annual plans have to be in accordance with forest growth. Usually, at the start of harvesting activities, little information is available on a forest's growth rates. Therefore, the best information available needs to be used and precautionary principles applied, so that irreparable damages to the resource are prevented. Also, the implementation of forest management should not be delayed due to lack of information. Forest management and growth-information-gathering activities can be carried out at the same time.
- i. **Forest-industry relation:** If forest management is integrated with an industry that processes the resulting products, actions that contribute to a better utilization of the forest products—as well as actions that allow for a greater number of products used—need to be implemented at the industry level.
- j. **Conflicting resource use:** If conflicts over access to different types of resources or over the impact of harvesting on another resource are detected, necessary actions need to be taken to mitigate or solve those conflicts. These actions are initiated early in the process of promoting, planning and implementing SFM.

- k. **Strategic infrastructure planning:** Depending on the scale of the operation, long-term planning is needed for all main infrastructures to be built. The aim of this best practice is an integrated assessment (i.e., considering all the resources and placing much attention on biodiversity conservation) of the forest. Road construction is one activity with the greatest potential for negative impacts on the forest and, therefore, the one requiring the most attention in terms of planning. This planning will help not only to reduce the number of necessary roads, but also to locate them in areas where they will be most useful and cause the least environmental damage.

1.9 OTHER BEST PRACTICES TO BE ADDED GRADUALLY AND ASAP

This set of best practices is no less important than the ones above. They are equally significant, and their implementation should be ensured as soon as possible. However, one should take into account the principle of gradualness and the fact that not all needed resources may be available to incorporate all that is ideally necessary for management activities. Therefore, these best practices may be implemented a few years after starting the execution of the forest management plan.

- a. **Liana cutting:** In some forest types, lianas are abundant, hindering felling operations, as it is more difficult to point trees in an appropriate direction to prevent damage and facilitate log extraction. In such cases, it may be necessary to implement liana cutting while the census of the trees scheduled for harvesting is conducted. This operation, performed before cutting the trees, is aimed at reducing damage to residual trees.
- b. **Safety of the operations:** This best practice is aimed at improving working conditions for the staff involved in implementing the management plan. It starts with the use of protection equipment such as helmets and ear protection by chainsaw operators; it also includes improvements in camps and other worker facilities.
- c. **Key ecosystem protection:** During the development of the management plan, the identification of key ecosystems or important protection areas needs to be ensured in order to conserve these in their entirety. These protection areas should be clearly identified in the field before tree-cutting operations begin, in order to avoid mistakes and misunderstandings. Situations may also arise in which at the time of the management plan's development, information is limited, and other key ecosystems and protection areas might be identified over time or after the development of annual plans. A very important best practice is to continually monitor the forest to identify other values that may not necessarily be timber or non-timber products, such as nesting areas or special areas for primates. When these types of resources are identified, relevant action should be taken and management and annual plans should be revised so that these zones are duly protected.

- d. **Directional felling:** As increased training is provided to field staff, best practices in directional felling need to be implemented to minimize the damage caused by tree harvesting. The practice enables control over the most suitable direction for a tree to fall once it is cut, so that damages are reduced and the tree is best utilized, minimizing waste.
- e. **Decreasing road length:** This practice is aimed at improving the planning of the logging road and skid trail network. It needs to be based on experience obtained after a few years of implementing the management plan; it focuses on optimizing the number of roads built in order to decrease operation costs and to reduce the impact on the forest and its associated resources.
- f. **Income and cost records:** In order for forest management to be truly sustainable, not only is environmental and social sustainability required, but also financial sustainability. Subsidies from assistance projects are quite important, especially to start and promote management during the initial stages, which usually require investments that communities are not able to make.

But, in the long run, management has to be self-sustainable. Therefore, it is important to establish appropriate record taking, both of costs and income stemming from forest management, so an assessment can be performed that identifies activities requiring extra attention and needing improvement. These records will also be an important tool to show the entire community, in a transparent fashion, what is happening in the forest.

- g. **Monitoring and evaluation:** Forest management needs to be implemented as soon as possible, even when information is insufficient to carry out the best achievable results. Management of plant development and implementation need to be done based on the best available information. And for those activities or parameters with limited information, monitoring and evaluation activities need to be commenced immediately to detect potential impacts. For instance: If, during the development of the management plan, appropriate information was lacking on harvesting's impact on residual trees, it is very important that as soon as the first harvest is completed, a damage assessment is conducted and, based on this monitoring, that relevant measures are taken.

Another example refers to forest growth. Initial assumptions—based on which the cutting cycle was established—have to be verified as soon as possible. If we assume that natural regeneration is going to be sufficient to guarantee forest regeneration, it is important that monitoring is performed, as soon as possible, of the regeneration established in clearings resulting from tree cutting and from the harvesting other products.

In the case of non-timber products, the same applies. A non-timber forest product is not automatically sustainable. It is equally important to monitor the existence of this product in the forest and to verify that harvesting is not contributing to the disappearance of the species.

Monitoring and record keeping are essential for the success of SFM. Basically, these can be approached in three contexts:

i. Forest resources

Appropriate base maps clearly showing vegetation types, land use zoning, physical infrastructure, and areas of high conservation value represent the first monitoring element. Through this and using satellite images, multi-temporal analyses can be carried out in order to establish what forest structure changes are resulting from SFM or other variables.

The sample inventory and the tree census are other tools to be used for monitoring, with both providing a record of the specific changes that have taken place in terms of the quality and quantity of products before and after the interventions. Additionally, inventories that include plots or geo-referenced trees may be useful to incorporate other basic assessments related to species distribution, non-timber products, product characterization based on environmental easements, or the relationships with wildlife in view of potential management.

Specific use or harvesting records such as the quantification and measurement of harvested trees in the case of timber products, and the records of marketed products and volumes in the case of non-timber products may constitute key elements to subsequently improve SFM activities.

ii. Operations, costs and financial profitability

Work results, yields, wage payment and use of materials are all an inherent part of SFM operations. To the extent possible, all these operations should be documented, recorded, processed and filed in a system that allows for rapid access and assessment in order to improve future efforts.

Records and documentation are a significant part of complying with government requirements, especially in regards to accounting and forestry regulations. Accounting records are useful to develop financial scenarios to establish real profitability, pay taxes, and define policies to share net profits. Also, forestry documents and records help in determining work strategies in order to find better methods for productivity and competitiveness, as well as methods to maximize participation.

iii. Local benefits

Monitoring local benefits is not a common practice. A good practice is to encourage keeping records of monetary and non-monetary benefits. The value of implementing this includes:

- Preventing conflict
- Improving social cohesion
- Offering specific guidelines to determine individual and group benefits
- Providing a basis to start or compare other productive enterprises

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