Chapter 11
Participatory Management of Tropical Dry Forests in Benin: Case Study From the "Trois Rivières" Forest, Borgou Region

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ABSTRACT

This chapter encompasses a literature survey and strategic analysis to understand the elaboration and implementation of Participatory Forest Management (PFM) in Benin, with a focus on the case of the "Forêt des Trois Rivières". By analyzing the historical background of forest management systems in Benin, we highlighted two major turning points. The first relates to the creation and autocratic management of protected forests, which took place from 1940 to 1990. The second change took place after the Rio conference in 1992, and this emphasized the importance of local communities in natural resources management. Moreover, the results of our strategic analysis of stakeholders involved in the specific case of Participatory Forest Management Plan (PFMP) of the "Forêt des Trois Rivières" showed that it is important to emphasize on active community participation while designing a participatory management plan and for decision making at the implementation stage. We also observed that alliances between foresters and timber loggers are likely to hinder the achievement of the PFM objectives.

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INTRODUCTION

Benin's natural resources are increasingly threatened by human activities due to its growing demography. As a consequence, the creation, development and management of protected areas is one of the effective strategies for biodiversity conservation (Arouna & Djogbenou, 2006). According to the International Union for Conservation of Nature (IUCN) and its World Commission on Protected Areas (WCPA), a protected area is "a clearly defined, recognized, dedicated and managed geographical area, by all effective means, legal or otherwise, to ensure the long-term conservation of nature and associated ecosystem services and cultural values". In this respect, since the 1940s and 1950s, the colonial governments of Benin have listed and classified as protected areas all the forested **massifs** throughout the country. Today, Benin has protected forests covering National Parks (869,867 ha in total), Hunting Zones (443,679 ha), classified forests (1,292,543 ha), and Reforestation Perimeters. Outside these protected areas, Benin has a range of natural resources relevant to the agro-pastoral sector. These include rivers, grazing areas, wetlands, etc. However, drastic reduction of resources and climate change in the present time is crucial to amplifying competition between actors around natural resources, and this poses with acuity the need for governance systems that are well suited to the socio-economic context of the riparian populations who strongly depend on ecosystem services provided by natural resources.

The continuous degradation of natural resources in general and agro-forestry resources in particular are now at the centre of Benin's major concerns. In order to counter this continuing degradation, the national forest policy has undergone profound regulatory changes since 1989 (MEPN, 2010). Earlier, order No. 4524 of 6 September 1949 established the ''Trois Rivières'' forest as a State Protected Forest. In 1994, a new Forest policy was adopted, which has the involvement of local riparian communities in natural resource management as a major innovation. These local riparian communities almost always include agro-pastoral communities whose livelihoods essentially depend on the exploitation of natural resources. The approach promoted by the new policy is to put all actors, including agro-pastoralists, in an organized and functional structure able to manage sustainably the available natural resources, called as participatory forest management. Despite this effort, natural resources continued to dwindle due to accelerated degradation and, paradoxically, there are disagreements between agro-pastoralists and foresters with consequences on the living conditions of the latter. Thus, we wondered about the reasons for the failure of participatory management plans to ensure better cohesion between stakeholders and effective sustainable resource management.

The initial answer to this question can be possibly found in the ideas of Crozier and Friedberg (1977), who postulated that actors in an organizational situation engage in games to defend their strategic interests. Accordingly, agro-pastoralists would perhaps find themselves in a game of actors from which they come out as a loser. Crozier and Friedberg define organized action as "the process through which the strategic interactions between a set of actors placed in a given policy area and mutually dependent for the solution of a number of common "problems" are stabilized and structured" (1995). According to Olaya and Ruess (2004), the previous approach is structured around four main axes: (1) a strategic actor (can be an individual, a group or any other collective entity) with its own interests and interactions with other actors who also act strategically; (2) a concrete system of action formed by interacting actors; (3) the game as an integration mechanism between the actor and the system where each actor has his own interests, but also the interest of keeping alive a concrete system of action; and (4) power as the capacity for action and consisting in an unbalanced exchange of possibilities for action (Crozier and Friedberg 1979, 1995). The approach proposed by Crozier and Friedberg which served as analytical framework of

this chapter has been used in many studies in relation to organized situations and project management as it allows a quick reading of actors' logics.

After a comprehensive literature survey on Participatory Forest Management in Benin, Crozier and Friedberg's approach of organized actions was used in this study to analyze the shortcomings of the current forest management systems in the Trois Rivières forest. The chapter is divided into four sections. First section introduces the background of study with associated problems in participatory management of natural resources in Benin. The second section describes the methodology used to collect, process and analyze the data. The third section deals with our study results and analyses. The last section presents the conclusions and suggestions to transform the participatory forest management in Benin into an instrument that betters agro-pastoralists' livelihoods.

BACKGROUND

The world is now facing unprecedented challenges of accelerated depletion of natural resources leading primarily into poverty accentuation, food insecurity and tremendous negative social changes in some regions. Natural resources deterioration is also tightly related to climate change as deforestation leads to enhanced greenhouse gas emission. There is limited understanding of the processes leading to improvement or deterioration of natural resources, which means that scientific knowledge is needed to describe and explain complex socio-ecological systems (SESs). SESs are composed of resource system (e.g., a forest), resource units (pastures), users (pastoralists), and governance systems (organizations and rules that govern the exploitation of forest's resources) Ostrom (2009). Although climate change is rife, pastoralism remains one of the most important activities in sub-Saharan Africa. The uncertainty over forage resources due to the effects of these changes forces pastoralists to use special breeding techniques that preserve their productive capital: livestock and ecosystems (Dia & Duponnois, 2013). Two trends exist regarding the literature about relations between pastoralism and natural resources protection. On the one hand, there are studies that present pastoral mobility as highly detrimental to natural resources preservation. Pastoralism is considered as being responsible for environmental destruction by causing soil deterioration, followed by groundwater pollution and deterioration of pastoral pathways (Carriere & Toutain, 1995; Carriere, 1996; FAO, 2009). Further, pastoralism is considered as a source of greenhouse gas emissions leading to resources depletion and pollution with an impact on biodiversity (Benhammou et al., 2005; LEAD/FAO, 2006; Dumortier et al., 2013). However, the second trend goes beyond the negative image of pastoralism and shows that it can contribute to the ecological sustainability of the natural resources it uses in arid and semi-arid zones (Bonfiglioli, 1990; Marty, Bonnet, Guibert, & Swift, 2006; Blanfort, 2011). Pastoralism allows the flexible use of natural resources to avoid the risk of overgrazing and environmental degradation. It also influences economic and environmental efficiency, enabling better vegetation regeneration (Hiya Maidawa, Andres, Yamba, & Lebailly, n.d.). At least we can stand on a median position to say that pastoralists can adopt environmentally friendly practices through mobility, to sustainably manage resources and avoid environmental degradation.

In Benin, 21% of the total land area is covered by natural forests and Fulani pastoralists are often found in each of the riparian areas. Fulani, originally a nomadic tribe, are now settling down and practicing agriculture as a complement to cattle breeding. They are, therefore, involved in some ways to land use changes in those riparian areas. Besides, as stated by FAO, (2016), Benin is one of the 18 African countries with net gains in agricultural area and net losses in forest area from 2000 to 2010. To reverse this trend, the

government is implementing several policies and one of them consists of drawing up Participatory Forest Management Plans (PFMP); involving both the government and local populations in protecting forests. In most cases, participatory plans require that each forest resource user pay a monetary contribution to the received ecosystem services. This policy, obviously, cannot accommodate the predominantly poor populations and lead to disagreements between State representatives (foresters) and local populations (in most cases agro-pastoralists). Worse still, this could affect the pastoralist's livelihoods by undermining the participatory process aimed by the government and leading to increased deforestation.

In the view of the above discussion, this chapter will seek to highlight major flaws in the participatory forest management approach and discuss the possible remedies to the actual governance systems that could be beneficial for pastoral communities. The chapter gives answers to the main question "why do agro-pastoral communities oppose the implementation of participatory management plans in Benin?"

As such, the following sub-questions will be addressed:

- What is the history of Participatory Forest Management in Benin?
- What are the conflicting issues for forest management in the Trois Rivières forest?
- Who are the conflicting actors for forest management in the Trois Rivières forest?
- What is the current involvement of pastoral communities in forest management as one of the stakeholders in decision-making?
- How can some of the current issues of the PFMP of the Trois Rivières forest be redressed?

CONCEPTS

Participation vs Participatory Management Plan

In agricultural extension, the concept of participation has its origin in the failure of the top-down approach through which rural communities received everything that comes from extension providers. Participatory management of natural resources refers to processes and mechanisms that enable those people who have a direct stake in resources to be part of the decision making about their management at different levels, from managing resources to formulating and implementing institutional frameworks (Schreckenberg, Luttrell, & Moss, 2006; Idrissou, 2012). Several authors laid the foundations for the participatory approach by defining a few principles, including the decision-making power that belongs to the grassroots communities, the need to have interventions that facilitate local development and the perpetual search for agreement between all the parties involved in an intervention. Accordingly, participatory management of natural resources aims at promoting sustainable exploitation of resources in order to contribute to the improvement of local populations' living conditions and consequently to reduce the pressure exerted on the natural resources.

Pastoralism and Pastoral Mobility

Pastoralism cannot be defined without stating at first what a livestock system is, as Pastoralism is a particular type of livestock system. Most scientific definitions of the term "livestock system" reflect a holistic view. For example: "A livestock system is a set of elements in dynamic interaction organized by man in order to develop resources through domestic animals to obtain varied productions (such as

milk, meat, hides and skins, manure, etc.) or to meet other objectives" (Landais, 1994). Pastoralism is, therefore, understood as a system of animal husbandry, which is mobile in space. Herd mobility is at the heart of the definition of pastoralism. The latter can indeed be described as a way of breeding animals by moving them in such a way as to make the best use of natural resources (Marty et al., 2006). Pastoralism and rangeland management refer to the extensive production of livestock using pastures and rangelands located mainly in the arid and semi-arid areas. Pastoralism, as practiced in Benin, is a traditional form of extensive livestock farming, based on the movement of herds between the rich pastures of the northern pastoral areas (in rainy season) and those of the southern regions (in dry season) according to the seasonal availability of water and pasture/fodder (including residual vegetation of cultivated land) (FAO, n.d.). According to FAO, the following types can be distinguished:

1. **Nomadism***:* Nomads are livestock producers who do not farm and only depend on the sale or exchange of their animals and products for food (e.g., Tuaregs and Fulani). Their movements are opportunistic. They monitor pastures and water resources according to a model that varies from year to year, depending on the availability of these resources.
2. **Transhumance:** Is the regular movement of herds between fixed points in order to exploit the seasonal availability of pastures. A characteristic of transhumance is herd splitting, with herders taking most animals for pasture, but leaving the resident community with a core of lactating cows and/or camels (e.g., Masai and Fulani). In West Africa, governments have tried to delimit transhumance corridors and legislate for cross-border mobility.
3. **Agro-Pastoralism:** Describes settled pastoralists, who live in the villages and cultivate enough land to feed their families. They keep their livestock as a valuable asset (herds are usually smaller). The combination of crops and livestock is primarily used to minimize risks. For example, poor harvests provide forage for the animals. Agro-pastoralism is the most present system in our study area.

METHODOLOGY

Research Approach and Selection of Study Area

This study mainly adopted qualitative research approach including both literature survey and interviews. First, our work consisted of consulting literature on the participatory forest management in Benin with a particular focus on its history and different changes that could explain the current conflict situation. Secondly, we inquired a specific Participatory Forest Management Plan (PFMP) to understand its realization process. In addition, based on the focus groups conducted, we were able to analyze the current state of participation of pastoral communities involved in participatory management, taking the case of the Trois Rivières forest, which is a tropical dry forest and has it management plan funded by the Forest and Riparians Territories Management Program (Programme de Gestion des Forêts et Terroirs Riverains – PGFTR, in french).The PGFTR has a national scope. Nevertheless, drawing on the work of Djogbenou et al. (2011), three main criteria motivated the selection of the classified forest of the Trois Rivières for our study: (1) it is an officially classified forest by law, (2) it has a participatory management plan and (3) it has a recent co-management experience. The advantage of being a classified forest criterion lies in the existence of public authorities (State) and local populations having established very ancient

and daily socio-economic and cultural links with the classified forest to justify a participatory management. Then, the availability of participatory management plan and the experience of co-management of the forest allow us to analyze why pastoral communities do not cooperate in the implementation of the management plan.

The predominant criterion for the choice of the study villages is the presence and involvement of agro-pastoral communities. Another important criterion is the intensity of disagreements between forest rangers and pastoral communities involved in the area. On this, we had discussions with the forest authority which made it possible to retain the villages of Péonga, Korogui, Kidaroukperou in the commune of Kalalé for our interviews and focus groups. As a case study, we concentrate on the northern part of Benin, precisely in the department of Borgou (Kalalé). We used theoretical sampling which consists of a selection process of respondents resulting from grounded theory and intended to allow conceptualization (*Table 1*). Our respondents were chosen according to the core theory that guided our study. Based on the answers we got and the analyses done, we discover new categories of respondents that helped us to establish the relationships among them.

Analytical Framework

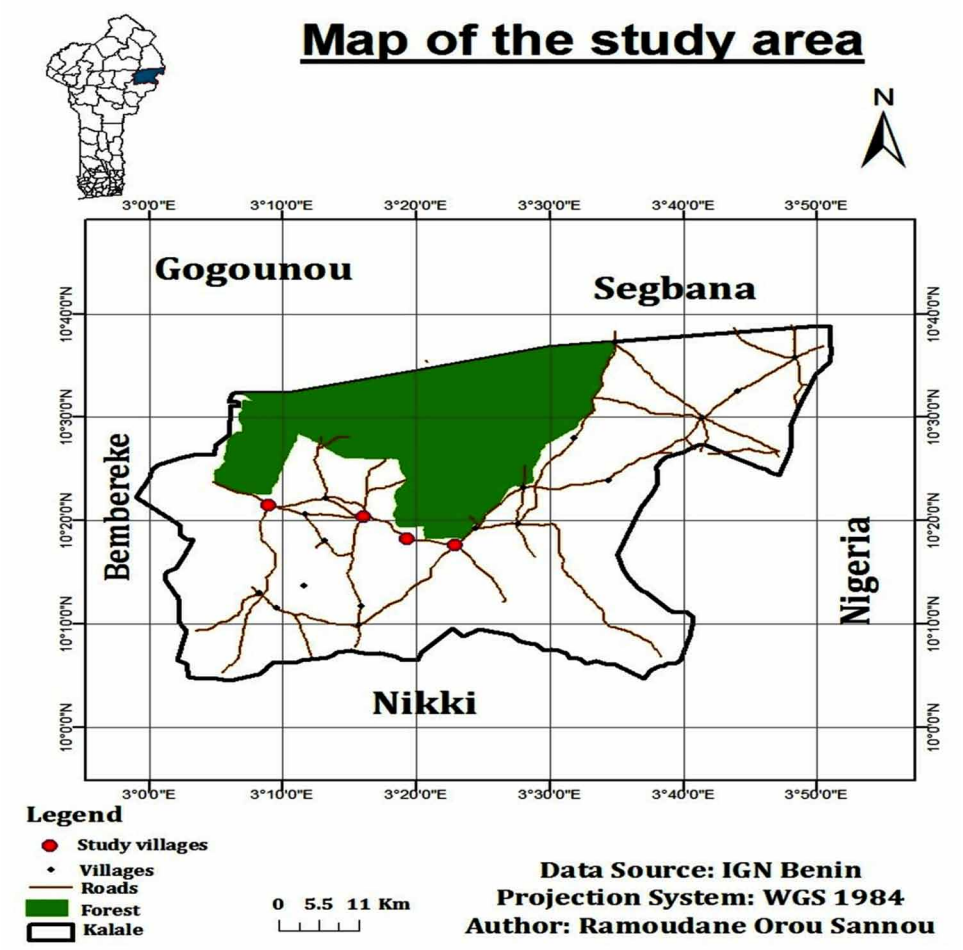
Our study made use of the strategic analysis approach of organizations' sociology to describe the relationships that existed between the actors involved in the Participatory Forest Management Plan and determined the reasons why agro-pastoralists oppose the plan. Strategic analysis is a theory of organizational sociology developed by Crozier and Friedberg. It uses a reverse approach to traditional organizational theories of studying individuals in order to understand the general structure of an organization. According to its authors, strategic analysis has as its central object the power relations within organizations, and privileges the strategic choices of social actors. The actors here do not exist outside the system that define his own freedom and rationality that one can use for his actions. But the system exists only through the actor who alone can carry it, give it life, and who alone can change it (Crozier and Friedberg, 1977). The organization is a social construct composed of actors who develop singular strategies, as a concrete system of action where the different strategies of the actors are deployed. Opposed to determinism, this theory insists on the relative freedom that every actor has within the organizational framework and on the sources of power (control of areas of uncertainty) that he can mobilize to optimize his strategy (Desreumaux, 2014).

Table 1. Study sample

	Stakeholder	*Number of respondents*	*Place*
PGFTR Actors	Forest Rangers	03	Parakou, Kalalé, Dunkassa
	Agro-pastoralist's representatives	02	Kalalé
	Local Administration	01	Péonga
	Agro-pastoralists	07	Korogui
	Timber loggers	07	Kidaroukperou
	Farmers	05	Kalalé, Péonga
Total	--	25	--

Source: By authors using data from field work

Figure 1. Map of the study area



Moreover, with reference to the strategic approach, a theoretical framework for environmental management analysis emerged in the 1980s: the Strategic Analysis of Environmental Management that elaborate on the basis of very diverse case studies, a theory of environmental management practice (Mermet, 1991, 1992). This theory adopts a systemic view of management situations that finds its source in Crozier and Friedberg's (1977) systemic analysis on the one hand, and in Mintzberg's (1989) on the structure and dynamics of organizations on the other. Our use of strategic analysis will consist in placing the PFMP, we are studying in a context of action systems. It will consist in elucidating the organization constitutes by all the involved actors, clarifying relationships that emerge as well from a social point of view (i.e. actors, rules, stakes) and ecological aspects (i.e. animals, plants, environments, etc.) (Mermet et al, 2005).

RESULTS

History and Impacts of Participatory Forest Management in Benin

In Africa, community forestry in different forms has been introduced during the 1960s and 70s. At that time, the trend was to establish 'community woodlots' around Sahelian villages so that pressure on remaining scarce tree cover for firewood supplies could be reduced. These projects turned out to be less than successful because of ill-defined management plan. Nonetheless, long-term thinking had begun in recognition of the fact that local forests were disappearing as population needs for pastureland, arable land and fuel wood were growing. It became apparent that government-reserved forests could not satisfy these needs for all rural people without some kind of management plan. One of the first documented experiences of developing a management plan under the heading of 'community-based management of natural forests' in Africa came from Niger in 1983 (Polansky, 2003).

In Benin, the power of control over forest resource management changed sides from one actor to the other before an inclusive model was adopted. Indeed, during the pre-colonial period, forest management was placed under the authority of land chiefs (MEHU, 2012). Most of the country's protected areas were created during the colonial period between 1940 and 1960. About 59 protected areas were created covering 2,179,418 ha, which represents about 20% of the country's total area. The colonial administration established them by removing rural lands and putting them under governmental control without the consent of the local communities whose farm lands were expropriated. From their creation until early 1990s, these protected areas were solely managed by government officials. Two major events triggered participatory management of protected areas in Benin. First, in 1990 Benin engaged political and economic liberalization policies that led to the withdrawal of the State from the management of several economic sectors. Then, the Rio de Janeiro Summit held in 1992 recognized the importance of environmental degradation and local communities' involvement in natural resources management. Afterwards, Benin's government issued the new forest law No 93-009 on 2 July 1993 and the adoption of a new forestry policy in November 1994 (later revised in 2011), which opened the management of the protected areas to local communities (Idrissou, 2012). The participation of local populations in forest management then became a necessity to protect forests and achieve socio-economic development.

Accordingly, several projects and programs for participatory management of protected forests have been initiated and implemented. These are the Bassila Forest Resources Restoration Project (Projet de Restauration des Ressources Forestières de Bassila - PRRF) from 1988 to 2003, the Natural Resources Management Project (Programme de Gestion des Ressources Naturelles - PGRN) from 1992 to 1998, the Participatory Management of Natural Forests and Village Reforestation for Carbon Reduction Project (Projet Aménagement Participatif de forêts naturelles et reboisement villageois pour réduction de carbone - BEN-93-G13 Project) from 1993 to 1998, the Agoua, Monts Kouffé and Wari-Maro Forest Massif Management Project (Projet d'Aménagement des Massifs Forestiers d'Agoua, des Monts Kouffé et de Wari-Maro - PAMF) from 2002 to 2007 and the Forest and Riparians Territories Management Program (Programme de Gestion des Forêts et Terroirs Riverains - PGFTR) which started in 2003. The start of participatory management of the classified forests of Tchaourou - Toui - Kilibo in November 1996 marked the commencement of participatory forest management in Benin.

The evolution of participatory forest management informs us of two notable changes (*Figure 2*).

First, the expropriation of land from local communities which began with colonial governments and lasted for half a century (1940 to 1990) has had undocumented consequences on the current relations

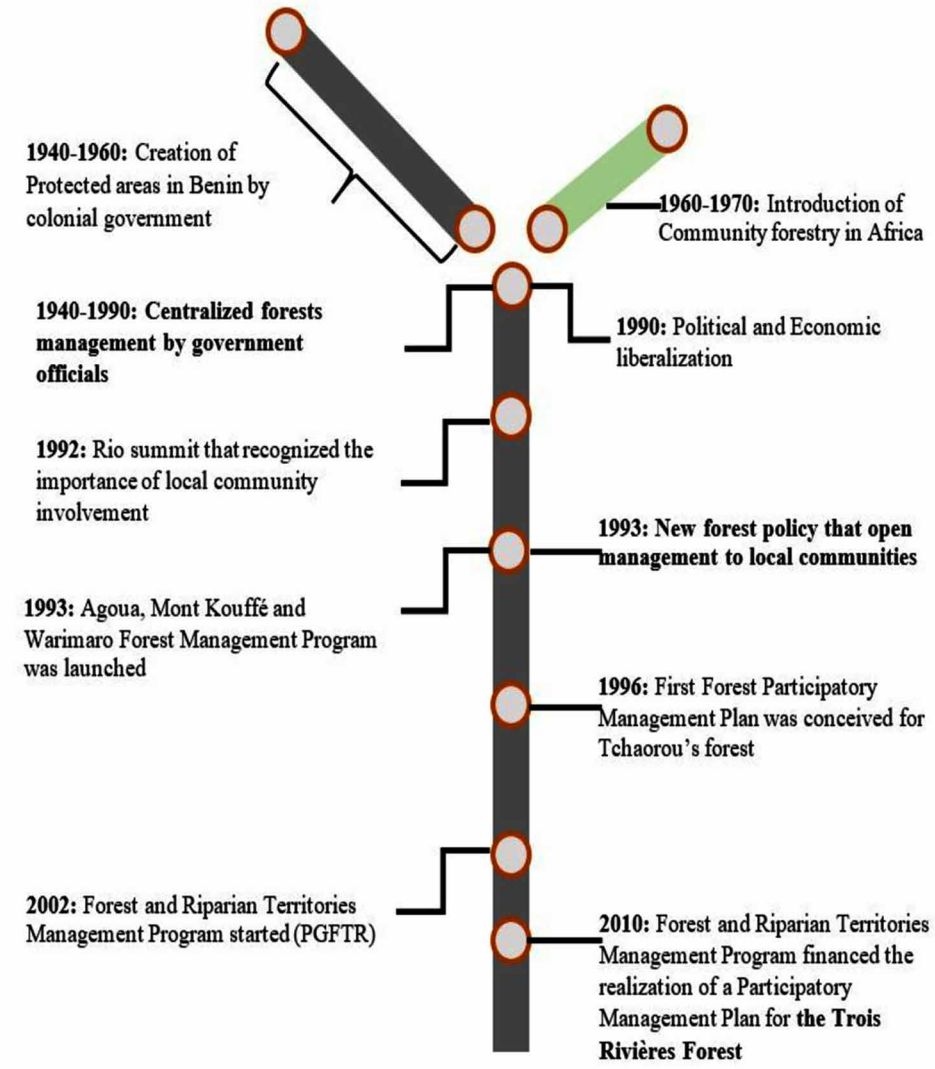
between forest administration and local populations. In fact, many conflicts emerged between both stakeholders because the protected areas were established without the consent of land chiefs and the riparian populations. The only use rights granted to riparian populations were limited to collecting dead wood and gathering fruit. A strict protection approach, supported by repressive methods was promoted to protect the forests. However, the very limited human and material resources of the Forest Administration have not really ensured the protection of classified forests and rather subjected them to various degradation factors. The second major change occurred after the 1990s and was related to the introduction of community participation in the protection of natural resources. Here again, the management approaches promoted have not met the set expectations. Studies conducted in that sense revealed that the lack of success of the forestry reforms of the early 1990s was mainly due to the failure to implement an adapted participatory approach to manage the protected areas (MDR and PGFTR 1999; Siebert and Elwert 2004). Like other forests in Benin where the participatory management approach has been implemented, the result after eight (08) years of implementation in the Trois Rivières forest is that timber resources are still illegally logged for the timber market and charcoal production, farmers continue to expand their farms deeper into the protected areas, and the pastoralists are still using the forests as grazing areas, with little respect for the regulations. Assuredly, these activities violate the agreements set during the project implementation phase. Worse still, people involved in the management of the project are equally and heavily involved in indiscriminate logging activities.

Participatory Forest Management and Agro-Pastoral Communities: The Case of the Tropical Dry Forest of Trois Rivières in Benin

Benin is a West African country located in the so called ''Dahomey Gap'' which is a dry corridor. The Dahomean Gap has particular environmental conditions, making countries located in that position drier than the other coastal countries of West Africa and consequently, the rainforest belt from Guinea to Cameroon skips Benin and Togo (Siebert and Elwert, 2004). In Benin, protected areas have been created by the colonial administration to avoid the complete depletion of ecosystems and protect very limited vegetation (Idrissou, 2012). The Trois Rivières classified forest is one of the largest protected forest in Benin with an area of about 259,600 ha. It is located in the northeast of Benin between 10°20' and 10°50' N latitude and between 2°45' and 3°40' E longitude. Given it geographical location and the type of vegetation it includes, the Trois Rivières classified forest is considered as a tropical dry forest. In essence, it is located in the northern region of Benin where a dry tropical climate prevails with a dry season from November to May, and a rainy season from June to September. It takes its name from the ''Bouli'', ''Tassiné'' and ''Sota'' rivers, and these rivers make the forest a preferred site for herd transhumance during the dry season (Toko Mouhamadou & Ozer, 2007). The forest is straddling the departments of Borgou and Alibori and has as riparian districts *i)* in the North-West, Gogounou, *ii)* in the North-East, Ségbana, *iii)* in the South-West, Bembereke and *iv)* in the South-East, Kalalé. Its cover is made up of 1.32% of dense forest, 41.55% of tree and shrub savannah, 35.40% of open forest and wooded savannah, and 14.65% of mosaic of crops and fallow land. The gallery forest covers 5.63% of the total area (MEPN, 2010).

In 2010, the World Bank-funded Program for Forests and Riparian Lands Management (*Programme de Gestion des Forêts et Terroirs Riverains-PGFTR*) established a Participatory Forest Management Plan (PFMP) for the Trois Rivières forest. The main objective of this 10-year plan was to involve local communities in sustainable forest management while promoting their own socio-economic develop-

Figure 2. Historical profile of forest management in Benin (Source: Authors with data from literature survey)



ment. According to that plan, the Trois Rivières protected forest is composed of three different zones. First, there is a buffer zone, which is a band of the protected forest estate surrounding the protected area. There are also peripheral areas, which are the areas outside the buffer zone, including the territories of all the bordering villages and hamlets. Finally, there is the rangeland, which is the forest area open to herd pastures for grazing or for watering. As the global trend is to encourage Payment for Ecosystem Services (PES) as suitable economic instruments to maintain ecosystem functions and services by rewarding benefits through payments and markets (BfN, 2012), the participatory management system in place in the Trois Rivières forest requests both sustainable exploitation and monetary contribution from local communities. After having shown the reason behind such kind of management system through its historical evolution, we wonder how it impacts local communities' livelihood and why pastoral com-

munities refuse to participate in such a management process. As an entry point into the discourse, we will look at the relations among stakeholders involved in the PFMP.

Stakeholders and Their Role in Managing the Forest

The Participatory Forest Management Plan (PFMP) of the Trois Rivières classified forest defines eight types of actors, namely: Timber loggers; Hunters and Fishermen; Pastoralists, Non-Ligneous Forest Product (NTFP) Operators and Tourists, Private plantation owners and Farmers. For the purposes of this study, we consider these actors as stakeholders instead of being simple actors. "Stakeholder" refers to the individuals or groups of individuals who not only exercise strategic actions but also have a stake in the project (Figure 3).

Most stakeholders identified here have a stake (whether it be positive or negative) that may interact with that of Agro-pastoralists and are carrying out strategic actions to protect their interests. Below, we provide concise descriptions of some of these important stakeholders.

1. **Forest Rangers:** foresters are the State's representatives in the community. They are responsible for coordinating with grassroots stakeholders, implementing the PFMP and mainly ensuring forest protection. They encounter enormous difficulties on the ground because of the non-respect of the PFMP rules by certain agro-pastoralists. The latter sometimes settle beyond the established limits (in the buffer zone) or prune trees in the forest during the dry season to feed their animals. This kind of exploitation is in contradiction with the spirit of participatory management, especially when the agro-pastoralists do not first pay for a forest pasture exploitation permit.
2. **Agro-Pastoralists:** Agro-pastoralists use the forest pastures to feed their livestock. Most of them settled in riparian villages or camps around the forest and farming is their secondary activity. The reason given by the agro-pastoralists to justify the pressure exerted on the forest is the multiplication of extreme climatic events, particularly long dry seasons. Because of the lack of fodder in times of drought, they are forced to bring their animals into the classified forest. In fact, the PFMP allows them to bring their animals into the classified forest, but this requires a permit beforehand. Only a few agro-pastoralists pay for the permit because they feel they do not need to pay to use nature's products. Most agro-pastoralists are against the participatory management plan, some use aggression to defend themselves from forest rangers. Others, however, try to corrupt them in vain.
3. **Agro-Pastoralists' Representatives:** These are agro-pastoralists who are members of the communal participatory forest management committee. They are mostly successful agro-pastoralists who have left the villages to settle in the central district and are often contacted to represent agro-pastoralists in decision-making. They are torn between defending their agro-pastoral comrades in conflict against forest rangers and preserving their commercial activities, being close friends of forest rangers.
4. **Farmers:** They occupy riparian cropping areas in the forest and mostly grow crops and cotton. Some farmers also used to occupy cultivation areas within the classified forest. However, with the intervention of foresters, most have released these areas, complaining of declining soil fertility.
5. **Timber Loggers:** Their activity consists of cutting trees to produce timber. Timber harvesting in the Trois Rivières forest should be carried out under conditions clearly stated in the PFMP. Some of the operators have declared themselves to the forestry administration. They are referred to as ''Registered Loggers''. Others, on the other hand, carry out their activity clandestinely: these are

the "Undeclared Loggers". Registered Loggers work with foresters to harvest timber, and consequently formed an alliance against Undeclared Loggers.

6. **Local Administration:** These are the first administrative officials in the area, the District Chiefs. They act as intermediaries between foresters and their constituents. Local elected officials are aware of the antagonism between foresters and Agro-pastoralists and mediate between the two groups. They are hesitant between the desire to protect the forest and that of defending the interests of Agro-pastoralists who constitute their electorate.

Following an analysis of relevant stakeholders, we were able to identify those who have interests in upholding the PFMP objectives, and others who are less concerned. Depending on whether they have a stake for or against the project, each stakeholder takes action to defend their interests. The stake here is what the actor has to gain or lose with the implementation of the PFMP. The case of the stakeholders involved in the Trois Rivières forest is summarized in figure 3. Indeed, foresters are strongly involved in the implementation of the project, not only as civil servants, but also for the perceived ancillary benefits, especially through logging, which is a very profitable business in the country. As far as declared timber loggers are concerned, they are torn between the desire to continue their activities either clandestinely - in order to cut as much wood as they want - or to grasp the opportunity offered to them by the foresters to exploit the wood but in limited numbers. Undeclared loggers, on the other hand, still operate illegally and are therefore opposed to the objectives of the PFMP. Farmers have mostly moved away from the buffer zone and now have their fields in the crop zone. In all the cases mentioned above, the stakeholder groups concerned continue their activities without being stopped by the PFMP. On the contrary, agro-pastoralists mentioned that they have no alternative but to continue to exploit the forest to feed their animals and therefore are opposed to participatory management. According to them, the forest is a gift of nature that belongs to all. The local elected representatives, especially the district chiefs, are torn between defending the interests of the riparian populations (including agro-pastoralists) and at the same time concerned with the preservation of the forest. They mediate between foresters and agro-pastoralists, trying to convince farmers to pay for exploiting forest resources. Following the analysis of agro-pastoralists' discourses, two main causes - linked to power relations between actors - emerge to explain their refusal to participate in forest management. At first, they see themselves as powerless against foresters, since foresters represent the National authority. These excerpts testify to it:

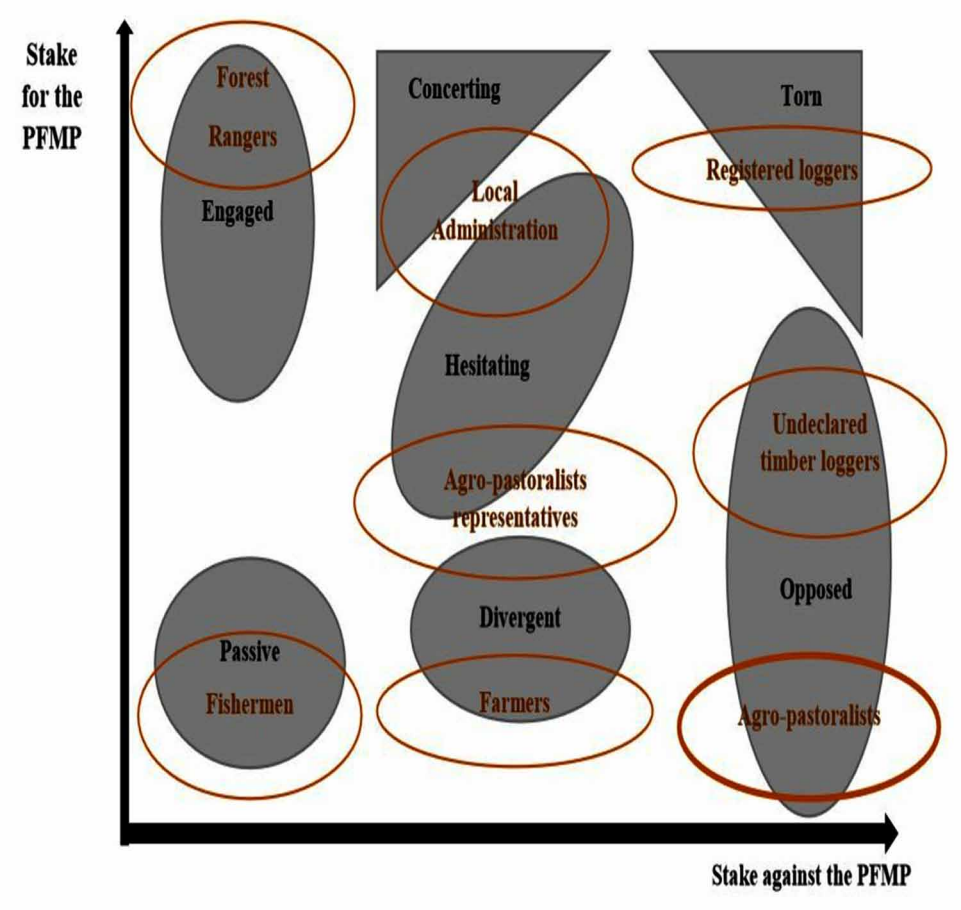
"We have no strength. Foresters represent the government and we can do nothing against them."

"Our weakness in the project is that we didn't go to school, so we often have to accept everything the foresters tell us."

"During meetings we have nothing to impose, all we have to do is listen to the rules of the foresters. We have no rules other than those established by the foresters."

The second cause of non-participation of the agro-pastoralists in the implementation of PFMP is rather related to the frustration they feel due to the increasing development of logging activities. For them, timber loggers have sufficient means to pay their contributions (fees) and continue to operate freely while farmers and agro-pastoralists appear to be victims of oppression. This frustration can be noted in the following statement:

Figure 3. Stakeholders' map (Source: field data)



"Loggers are not our friends [...], unfortunately we can do nothing against them because logging is done in agreement with the forest administration and they are also close friends of district chiefs"

Thus, it was noted that agro-pastoralists have little motivation to participate in participatory management because for them, the PFMP has "made access to pasture difficult". They oppose to the plan because they feel aggrieved while some actors still benefit from forest resources. This is compounded by the feeling of inability to act against the public authority represented by forest rangers.

Methodological Flaws Associated With the Management of the Trois Rivières Forest

The elaboration process of the PFMP was led by the Forest Authority and involved passive participation of local communities. Passive participation is defined as participation where the local population is told what is going to happen or what has already happened. Sometimes, participation is done through information, which consists of involving the population by asking them questions without them being able to influence the process. Thus, in the case of the PFMP of theTrois Rivières classified forest, the

participation of local populations - including agro-pastoral communities - in the elaboration of the plan was done through awareness raising campaigns whose sole objective was to make them adhere to the ideals of the plan. The overall approach to developing the PFMP - as stated in the document itself - has been to consider the forest as *"a business to be managed sustainably"* while respecting the existing ecosystem. This conception of the forest already suggests a capitalist approach to its management as entrepreneurial management is often profit-oriented. This philosophy can be considered as the basis of the introduced regulation that obliges all farmers to pay a contribution in order to have access to forest resources, notwithstanding the capacities of some actors such as agro-pastoralists as well as their sociological perception of the forest.

Furthermore, given the current implementation of the plan, we have noticed that the Village Forest Management Committees (VFMCs) that have been created to involve communities in forest management are inactive and therefore do not influence decision-making. Consequently, decisions are taken unilaterally by the forest authority. In some cases, the leaders of the agro-pastoral community residing in the central district are invited to serve as representatives for decision-making. Also, according to the foresters currently working at the forest office, organizing awareness campaigns for agro-pastoral communities is a method that allows them to get involved in the management process. On the other hand, the agro-pastoralists consider these awareness sessions as moments of "call to order" and maintain that their voices are never taken into account.

Also, they think that sending representatives from their community to make decisions is not enough to have their opinions taken into account. Since these representatives live in the city, they rarely report to the large mass of agro-pastoralists living in villages. These are some of their statements:

"We participate in awareness sessions, but these meetings are made to ask us to leave the forest surroundings and not to bring our cattle there."

"Sometimes we send our delegates to the meetings and they are supposed to often come and report to us, but as they live in the city, and most of them are traders, they don't have time to report to us, they don't care about our problems."

In the context of the classified forest of the three rivers, the foresters and the declared timber loggers, have reached a fate of alliance allowing the timber operators to continue their activity and the foresters to benefit equally. This causes frustration among agro-pastoralists and accentuates their antagonism towards the PFMP. Indeed, agro-pastoralists claim that due to extreme climatic events, especially long droughts, it is difficult to find enough fodder for their animals in the rangeland. Thus, they are forced to bring their herds to graze in the classified forest. However, they do not understand why they must first pay for a permit to exploit the natural heritage of their living environment. In short, agro-pastoralists refuse to pay monetary contribution for a participatory plan that benefits other stakeholders and not them. This can be deduced from the following statements:

"The foresters' project has no advantage over us. They're asking us to pay for access to the forest. This forest belongs to us all."

It also appeared that although agro-pastoralists are aware of the regulations brought by the PFMP, they are unaware of the boundaries of the classified forest. In fact, there is real confusion in determining

the boundaries between the buffer zone and the cultivation area. This can be noted through the following excerpts:

"We helped reforest the forest. We thought the foresters were going to leave us this part but now they say that it is in the classified forest and that we must no longer cut these trees. Then we're asked to pay 200 FCFA (less than 50 cents USD) per head of oxen to bring our animals into the forest but we don't know what the money is for."

"A few years ago, they showed us where we could do our farms but today they still say that we are in the classified forest and we have to leave the place"

"They arrest people amongst us every day, even some of those who have paid their contribution in past years."

In summary, agro-pastoralists outrightly decided not to participate in participatory management or even to go against the objectives of the PFMP for three reasons. First, they feel alienated from the participatory process and acknowledge that they only received information about the rules to follow. This cause finds its source in the inactivity of the VFMCs and the methodological defect in the design of the PAP, which involved the population only through information campaigns. The second reason is related to the logging activities. Indeed, the loggers are considered by the agro-pastoralists as the owners of the forest, next to the foresters: ***"they continue to harvest timbers while we are denied access to the forest"***. According to agro-pastoralists, this point contributes to the third cause, which is rather linked to the scarcity of pasture due to long droughts. They ventilate that the species of trees cut down by loggers are fodder for their animals. It can therefore be assumed that logging activities in the classified forest of the three rivers considerably reduces fodder for animals in periods of drought.

Participation of Agro-Pastoralists in the PFMP of the Trois Rivières Forest

Following our analyses, the reasons that explain the refusal of agro-pastoralists to participate in the implementation of the PFMP can be categorized into three groups (*Table 2*). These are the historical reasons, those linked to the institutional set-up of the plan and those linked to the current conflicting relations with the other stakeholders. As demonstrated above, the various changes observed in forest management history in Benin have not only accentuated the impoverishment of local populations, but have also encouraged them to further encroach into the protected forest areas, especially after the 1990s. Likewise, the current setting of management that is being implemented is responsible for many disagreements, making it difficult for pastoralists to sustainably benefit from the forest. In fact, it is important to mention that the institutional framework of forest management provides for the existence of a Participatory Forest Management Committee in charge of monitoring the strategic orientations of the Participatory Forest Management Plan (PFMP). At village level, there are Village Forest Management Committees (VFMC) seconded by village sub-committees responsible for monitoring exploitation of each forest resource and serving as link between the forest administration and villagers. However, our discussion with the pastoralists showed that these committees are essentially inactive and almost non-existent. This lack of a viable communication channel potentially explains the persistence of some misunderstandings. As matter of fact, it is known that pastoralists are often present in the area because of its potentialities

Table 2. Rationales for the non-participation of agro-pastoralists in participatory management

Key issues	Consequences
Historical background	
Autocratic forest management from the colonial period to the 1990s	Impoverishment of riparian populations including agro-pastoralists
Introduction of the participatory management approach in the 1990s without adequate means for its implementation	Rush of populations towards the forest leading to its accelerated destruction due to lack of necessary means to effectively operate participatory management
Methodological shortcoming of the PFMP	
Non-active involvement of local communities in the development process of the PFMP	Inactivity of Village Forest Management Committees (VFMCs)
Introduction of a management system unsuited to the socio-economic context of local communities	Refusal of payment of participatory management contributions by agro-pastoralists leading to conflicts
Stakeholders relations	
Alliance between foresters and certain timber loggers leading to an increase of logging activity	Reduction of forage resources and frustration of agro-pastoralists who refuse to pay their monetary contribution in order to access forest resources
Hegemony of the forest administration on all other actors, due to the inactivity of participatory management committees	Potential driver of the rebellion of agro-pastoralists leading to violent conflicts

in terms of pastures and waterholes. They have settled down, practicing agriculture (agro-pastoralism) even when they have no legal right over the land because of their past mobility tradition. In addition, many farmers in the riparian villages are facing problems of declining soil fertility and climate change, leading them to make new farmlands in the forest without permission. Consequently, there is a strong pressure on the forest's resource system, leading to changes in land use patterns. Similarly, timber logging is a dominant activity around the forest and involves actors at various levels. This combined with the inactivity of local monitoring subcommittees, as stated above, to accentuate the disagreements between the different actors involved in the management of the forest. Although the Participatory Forest Management Plan (PFMP) reserves exclusive access for natural resources exploitation only to local population, they are still required to obtain access permits and pay fees for receiving ecosystem services provided by the forest. For instance, herders are required to pay 300 FCFA (around 0.50 USD) per head of cattle brought to forage in the forest. Procedures for obtaining permits and paying operating fees should normally involve participatory management committees at various levels. Here again, the inactivity of these committees leads to domination of Forest Rangers over other actors. As a result, agro-pastoralists no longer contribute in the participatory management process because they fail to understand why they have to pay for access to the forest's natural resources while timber logging activity is concurrently increasing. They believe that the pressure exerted by timber harvesters mixed with extreme climatic events (long dry seasons), greatly reduces forage for their livestock and as a consequence affects their livelihoods.

How to Address the Current Situation?

Based on our results, three major sources of problems were identified vis-à-vis the conflicting situation among pastoralists and foresters in the three rivers context. As far as historical causes are concerned, it would no longer be possible to go back in history to address them. However, solutions can be found

to the methodological flaws of the plan and the current conflict situation. As a first step, it would be important to conduct a quantitative study to assess the socio-economic effects this plan has inflicted on the agro-pastoralists' livelihood and then identify appropriate corrective actions. Taking into account the identified problems pertaining to participatory forest management, we propose two possible remedies. The first relates to the governance aspects while the second is linked to the involvement of agro-pastoralists.

1. Re-Adapt the Management Plan to Local Socio-Economic Context

Considering the current management context, foresters are the decision-makers on all aspects of management, making it necessary to have active community management committees that balance power relations between local communities and foresters. Also, public participation must be preferred over appointing agro-pastoralist representatives for the decision-making process. Sanctions should be designed according to locally relevant procedures and the use of imprisonment should be avoided as much as possible. A sanction mechanisms must also be enforced for foresters involved in illegal logging. Furthermore, since it has become evident after discussions with the agro-pastoralists that the boundaries of the buffer zone are not clearly defined, we suggest a redefinition of those boundaries. Riparian communities and mainly agro-pastoralists should be involved in planting local tree species to allow biological materialization of buffer zone boundaries. Prospective tree species that could be planted in the buffer include *Tectona grandis, Vitellaria paradoxa*, *Khaya Senegalensis* or better, use species whose foliage are appreciated by cattle, namely *Acacia albida, Daniellia oliveri, Lophira lanceolala*.

2. Encourage Agro-Pastoralists to Preserve the Forest

Several actions can be taken to encourage agro-pastoralists to participate effectively in the participatory management. Indeed, the PFMP includes a component that should in principle support closest communities in the development of income-generating activities. Unfortunately, the implementation of this component is not yet effective. To reduce pressure on the resource, it will be beneficial to orient and train agro-pastoralists on income-generating activities that they can combine with pastoralism. Also, it would be important to train the latter on soil fertility management techniques to avoid opening of new farmlands in the forest as the decline in soil fertility has become a major problem in the region. Finally, by considering the multiplication of long dry seasons leading to lack of fodder in times of drought as one of the reasons given by the agro-pastoralists to justify the pressure exerted on the forest, it would be helpful to create community pastures for grazing or for watering. Those community pastures might be managed as common pool resources in order to facilitate grazing during the dry seasons and avoid further forest degradation.

CONCLUSION

The participatory management of forests in Benin essentially fails to ensure active involvement of riparian communities' right from the onset. This has to some extent contributed to the conflicting situations observed between the government agents in charge of forest protection and agro-pastoralists. Consequently, forest resource degradation is increasing and the participatory management plan in place tends to create inequality in the access to resources. This study tried to understand why agro-pastoralists communities

refuse to take part in the management of the Trois Rivières classified forest. Through the use of strategic analysis approach, we were able to determine the key elements of the established PFMP that block agro-pastoralists' participation in forest management. Indeed, it appears that the active or passive participation of agro-pastoral communities from the design of programs often determines what happens next. In the studied case, the village committees in charge of leading the participatory process are inactive due to the absence of clear bases from their constitution. Similarly, sending representatives during the design phase of the management plans has proven to be ineffective as a way of involving or engaging these communities. Moreover, the creation of alliances between stakeholders with relevant assets not only has negative consequences on the participation of agro-pastoralists but also on the resource. In addition, we found that setting clear management rules and limits are critical to ensuring agro-pastoralists' participation in the PFMP. Although these theoretical results need to be tested in future quantitative research, we conclude that the non-active involvement of agro-pastoralists in the design of natural resource management policies and the development of unexpected relationships in their implementation are the main issues of concerns in the institutional design of PFMP. We propose that these issues be taken into account in order to ensure a better participatory forest management and avoid its perverse effects on indigenous communities, whose livelihoods depend heavily on natural resources.

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