



PERCEPTIONS AND USES OF TOGBIN-DAHO MANGROVE IN SOUTHERN BENIN

Codjo Timothée TOGBE

codjo1981@yahoo.fr

University of Abomey-Calavi,

ABSTRACT

Postulating that the local perceptions made out of the use of the mangrove resources induce their degradation, this endogenous research article aims to scrutinize the so-portrayed social phenomenon through the lens of qualitative method principles. In order to formulate its objectives the ongoing research has adopted direct observation and semi-structured interview conducted with sixteen respondents systematically sampled along the diversification and saturation lines. As a matter of fact, one of the requirements of the sustainable development paradigm seems to be the responsible exploitation of the natural resources continuously threatened and endangered by the impacts of climate change. Such a responsible use is not always respected within some communities. As a result, emerges the destruction of resources like the Togbin-Daho mangrove in Southern Benin. The findings analyzed and discussed against the backdrop of the theories of social representations and tragedy of the commons reveal that the perceptions of the riparian population about the Togbin-Daho mangrove substantiate their way of use, and thereby its destruction.

Keywords : Destruction, Mangrove, Perceptions, Uses, Togbin-Daho, Southern Benin.

INTRODUCTION

The ecocentric conception, embedded in the sustainable development paradigm, gives primacy to natural resources preservation and conservation in an ecological perspective, moreover regarding the deep ecology approach (C.T. Togbé, 2014, p.42). This vision of sustainable development remains an ideal to be achieved considering the irrational use that riparian populations make of those natural resources in their move to meet their needs. It is specifically in this impetus of hypothetical exploitation in disarticulation with the protection of the resource of nature that this article devoted to the "perceptions and uses of the Togbin-Daho mangrove in southern Benin" fits in. As we know, the mangrove, according to FAO and LEA (2018, p. ix),

is a coastal forest of tropical and subtropical regions, characterized by the presence of mangroves, trees with stilt-like roots that grow in the silty sand of estuaries and brackish lagoons. The mangrove is made up of a variety of tree species such as rhizophores and mangroves that grow on fine, colloidal sediments such as mud and clay. In Benin, there are two mangrove sites embedded in wetlands of international importance or Ramsar sites [...]. The mangrove serves as a refuge for many endangered species and as an essential link in the path of migratory birds. The mangrove contributes to the protection of the coastline. The people living along the mangrove swamps earn a substantial income from wood harvest, fishing, rice farming, salt extraction, market gardening and other activities, including honey harvesting and medicinal plants sale. Given the inadequacy of

current methods of harvesting floral and faunal resources in the mangrove, the maintenance and preservation of these resources calls for an inventory of the biodiversity still available in the mangrove ecosystems of Benin.

This definition of the mangrove indicates the actions to be conducted in order to ensure its preservation. To this end, it is important to think about establishing a mechanism to fight against its resources degradation and devastation at both national and international levels. Moreover, the issue of environmental destruction has been deeply over-flogged during the 1972 Stockholm, 1992 Rio and 2002 Johannesburg summits. The most important of all those activities is to find solutions so as to mellow down the degradation of natural resources which remains unavoidable to any country on the planet.

As far as natural the degradation of resources is concerned, between 1978 and 2010, Benin lost almost 85% of its dense forests and more than 30% of its vegetation cover (FAO, 2010). Still, in line with the dynamics of the deforestation phenomenon, FAO (2011) noted that about 75,000 ha of forests were destroyed annually in Benin during the decade 1990-2010. These empirical data highlighted by the Food and Agriculture Organization of the United Nations (FAO) show that natural resources are under threat in the Republic of Benin; a situation that does not escape any ecosystem, including Togbin-Daho mangrove. In order to slow down and put an end to natural resources destruction, Benin has taken regulatory and institutional measures including Law n°98-030 dated February 12th, 1990 stating Blueprint Law on Environment in the Republic of Benin, the establishment of the National Sustainable Development Commission (CNDD), and the elaboration of the National Sustainable Development Strategy of Benin in 2005. The enforcement of those legal instruments provisions is materialized through public policies governing the sector of environmental development. In this perspective and especially in line with the momentum adopted for the protection of Togbin-Daho mangrove, the Benin government has embarked on reforestation and ecotourism projects which contribute to adamantly prohibiting mangroves' wood harvest, and promoting responsible fishing. This governmental mechanism, to some extent, has arrived in response to the United Nations Environment Program (UNEP) 2007 alert stipulating that 70% of mangrove resources could disappear if nothing is done. The governmental mechanism legitimacy (J.P. Olivier de Sardan, 2009) on natural resources "[...], the development and management of mangrove biodiversity [...]" (FAO and LEA, 2018, p. ix) and above all, its relevance is in the fact that mangroves represent a non-negligible source of income for riparian communities. The United Nations Food and

Agriculture Organization (FAO, 2003) corroborates this analysis, arguing that 55% of the world's population earns their livelihood from those resources. Therefore, it is imperious that the local populations develop an interest in preserving natural resources (P. Lavigne Delville and P. Hochet, 2005). However, despite the legal and institutional mechanisms put in place by Benin Government with a view to protecting wetlands, natural resources continue to suffer from irrational harvest and exploitation by the local population who illegally or overtly conduct logging or harvest operations, as evidenced in Togbin-Daho mangrove. Those various anthropogenic actions result in the persistent degradation of the resource. In order to better demarcate the scope of the reflection ventured in this research work, it becomes necessary to dig into the following fundamental question: How can one justify and account for the persistent destruction of Togbin-Daho mangrove? To design and formulate a reasonable answer to this research question, it can be postulated that the perceptions the riparian populations have of the Togbin-Daho mangrove encapsulate destabilizing germs that materialize through abusive uses which induce its destruction. In line with the hypothesis formulated, this research work aims to describe the perceptions of the actors around the mangrove in question, which perceptions feed the uses they make of it.

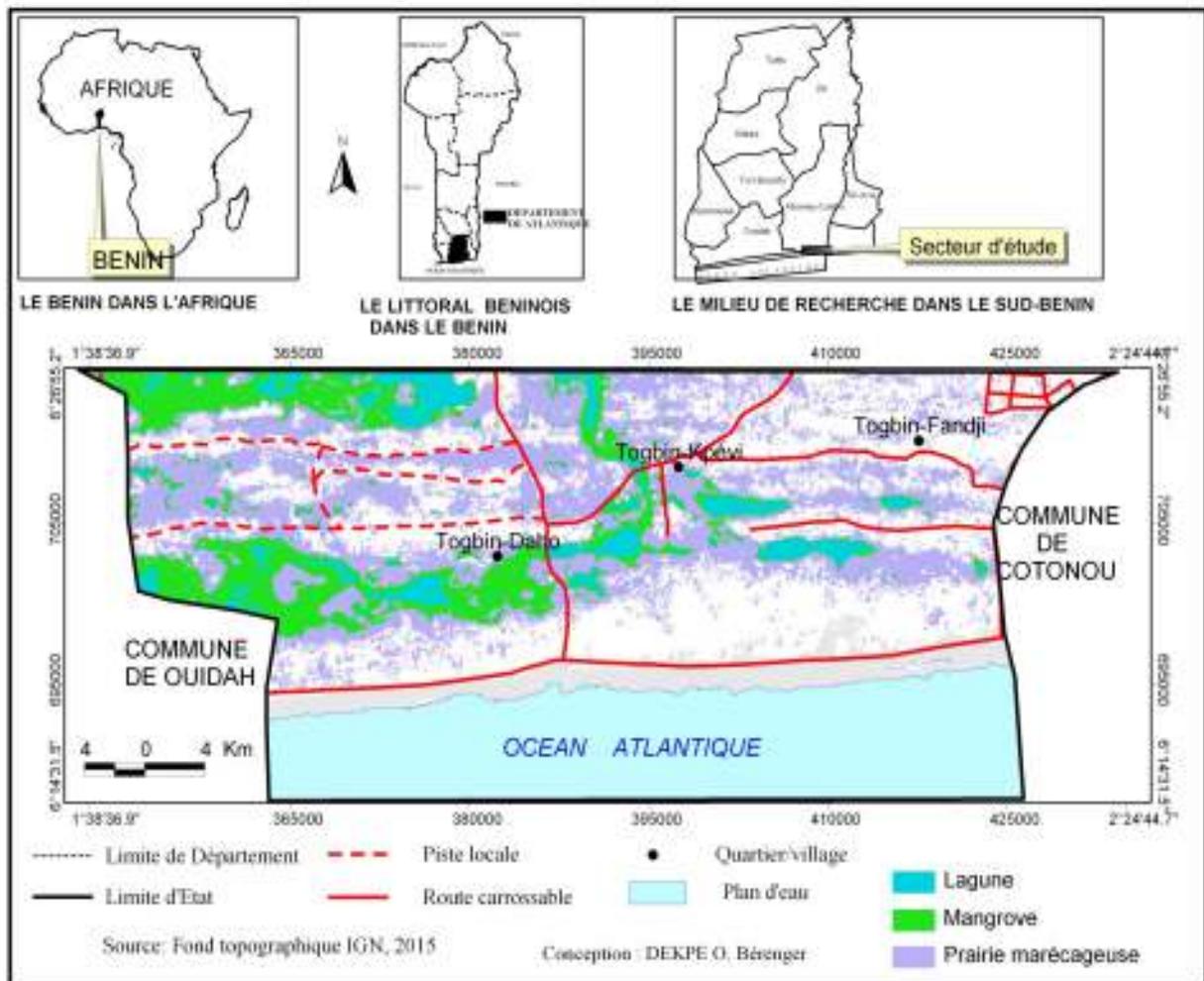
The ongoing study revolves around three essential bullet points. These are the research area and the methodological approach (1), the theoretical framework (2), the results and discussions (3).

1. Scope of the Study and Methodological Approach

1.1. Scope of Research

Togbin-Daho village lies 8km south of Cotonou; it is a locality established in Abomey-Calavi Municipality and placed under the administrative authority of Godomey district, in the Atlantic region. This village is bordered southwards by Atlantic Ocean coast, northwards by Hèdomè village, northeastwards by Togbin-kpèvi village and westwards by Adounko village (Ouidah Municipality). Map 1 shows Togbin-Daho village, the research area.

Figure 1 : Geographical location of Togbin-Daho



Source : Topological background by IGN, 2015

1.2. Methodological approach

This research is based on qualitative methods of objectification of social reality in the humanities and social sciences. It is therefore based essentially on direct observation and semi-structured individual interviews. Direct observation is preferred because of the qualitative nature of the research. It has been selected in order to observe not only the state of the Togbin-Daho mangrove but also the activities of the local population. Semi-structured interviews were chosen in order to have face-to-face discussions with the various stakeholders. Of course, the interview is a privileged means 'for generating discursive data giving access to epic representations [...] indigenous, native, local' (J.-P. Olivier de Sardan, 2003, p.7), makes it possible to

describe 'people's inner perceptions in order to contribute to a better understanding of social realities' (U. Flick et al., p. 2009, p.14) and to deepen the information (E. Bédard, 2012). Being an investigative technique, the interview makes it possible to collect the perceptions that the different social categories of respondents have of the Togbin-Daho mangrove, perceptions which determine and induce the uses they make of it. The people interviewed by using semi-structured interviews were selected based on the purposive sampling technique and the principles of diversification and saturation. Thus, 16 actors were selected, namely 02 local elected officials, 04 fishermen, 02 endogenous religious leaders, 06 salt growers and 02 beach residents. The selection criteria used are: being a riparian of the Togbin-Daho mangrove, being at least 18 years old, having knowledge about the management of this natural resource, and having lived in the riparian community for at least five years. The qualitative data collected was processed using content analysis and triangulation. They were confronted with theories of social representations and the tragedy of the commons.

2. Theoretical models

Two theories prominent in the analysis of the data collected are privileged in this research. Firstly, the theory of social representations used in the perspective of N. Groult (2010) and C. Garnier and L. Sauv e (1999). And secondly, the theory of the tragedy of the commons by G. Hardin (1968) was called upon.

Concerning the theory of social representations, the scientific literature argues that it can "[...] be very useful when trying to describe and understand conduct in different contexts of human activity. [...], it has been taken as a frame of reference in much research in the human sciences, sociology, anthropology [...]" (N. Groult (2010, p. 439-440). Taken in the sense of the description and contextual understanding of human activity, the theory of social representations is relevant to this research in that it will allow us to describe the human practices that develop in the access to the Togbin-Daho mangrove. This reflection is in line with the analysis according to which the theory of social representations 'offers a particular insight that favours a better understanding of the relationships between the individual, the social group and the environment; it allows a better grasp of the social dynamics involved in environmental issues [...]' (C. Garnier and L. Sauv e, 1999, p.65).

As for the theory of the 'tragedy of the commons, put forward by G. J. Hardin (1968), it is, according to the definition of S. Tremblay-Pepin (2013), a concept used to evoke the harmful consequences of the mixture of the search for individual profit and the use of free common resources. Through the theory of the tragedy of the commons, G. J. Hardin (1968) describes the competition that arises from the moment that limited natural resources are placed in a 'common' ground, a competition that leads to the destruction of common resources. The author thus attempts to highlight the overexploitation that results from the non-allocation of a resource. A resource that belongs to all is nobody's and, in such a context, several social categories access it by referring to various sometimes or often uncontrolled uses that do not guarantee the preservation of the common resource. The theory of the tragedy of the commons is relevant to this research for several reasons. The first is that the Togbin-Daho mangrove is a commons devoid of the distribution of private property rights. The second reason is linked to the sociological problem that feeds the research: the persistence of the Togbin-Daho mangrove degradation despite the state's measures for its preservation. This second reason fits well with the theory of the tragedy of the commons, which states that a collective resource is faced with its destruction.

3. Findings and Discussion

3.1. Findings

The findings of this research are organized in two articulated lines. Firstly, the perceptions that people have of the Togbin-Daho mangrove are presented and secondly, the uses they make of it are put forth.

3.1.1. Perceptions as Root Causes Destabilizing the Togbin-Daho Mangrove

Two perceptions are presented here that contain seeds of destruction for the mangrove investigated.

- **Togbin-Daho Mangrove: a space where wood cutting is a source of regeneration**

According to the information collected from the people interviewed, the cutting of mangrove trees in the mangrove does not pose any problem to the ecosystem. Contrary to what one might think, local rationalities state that cutting mangroves contributes to their regeneration. The legitimation of this natural regeneration mechanism is described by a respondent who states:

It is because we harvest the mangroves that the stumps fall and sink into the mud to grow more mangroves. If you cut a part here and leave it, six months later the tree trunk sprouts and grows more branches (Salicultrice, Togbin-Daho, February 2021).

This statement shows that cutting mangroves does not necessarily lead to the destruction of the mangrove. On the contrary, cutting mangroves is seen as a mechanism that favours regeneration, or rather self-reproduction, of this cut wood species.

- Togbin-Daho mangrove: a gift from God to feed local people

The Togbin-Daho mangrove is perceived by the local population as a natural resource that God has made available to them to satisfy their vital needs. This local logic is highlighted in the following verbatim:

The mangrove is God's wealth. Nobody brought mangroves here. Every locality has its food and God has given salt to the women here. Now, what do they need to prepare this salt with? That's why the Lord, the creator of life put the mangrove here and if they come here they can look for firewood without getting in the way [...] It's the tree that gives food to a community, it's the tree that gives peace to the community, and it's the tree that gives food (Salt grower, Togbin-Daho, February 2021).

These words of the interviewee confirm the local logic according to which the mangrove of Togbin-Daho is a wealth offered to the residents by God. For this reason, they carry out income-generating activities there, which enable them to feed themselves. This means that their perceptions determine the uses they make of the mangrove.

3.1.2. Some Destructive Uses of the Togbin-Daho Mangrove Resources

The local populations make different uses of the Togbin-Daho mangrove according to the perceptions they have of this natural resource. This article focuses on the presentation of two uses that contribute to the destruction of the mangrove.

- Domestic Uses of the Togbin-Daho Mangrove

The information collected from the respondent population as well as the field observations show that the local populations exploit the Togin-Daho mangrove for domestic purposes. In various households, mangroves are used as firewood to prepare meals or Sodabi (a local alcoholic drink produced from oil palm in the Republic of Benin). Apart from this domestic use of the mangrove, the populations also use it to build their houses. In other words, they access it to cut wood to build their houses. The satisfaction of these recurrent human needs (various preparations, construction of houses, etc.) gradually leads to the destruction of the sought resources.

- Economic Uses of the Togbin-Daho Mangrove

The Togbin-Daho mangrove is used for income-generating activities for residents. These include salt farming and the timber trade. Concerning salt farming, an activity

that is exceptionally carried out by women during the dry seasons in the marshy meadows, it must be said that it generates money for the practitioners according to empirical data. That is confirmed through the following statement:

We used to produce salt. If we produce salt well and sell it a little bit until the end of the year, we find at least three hundred thousand (300,000 FCFA) or four hundred thousand (400,000FCFA). If the swampy area is suitable for salt production, we sometimes produce salt for ten thousand (10,000FCFA) during one day. Before producing such a quantity, you have to start at 6 a.m., have a three or four end fire pit containing three and four basins respectively and have enough faggots. If you start at 6 a.m., by 10 a.m. you can make the first production and by 1 p.m. the second production of the day. We used to use mangroves. But the state has now banned the use of mangroves (Salt farmer, Togbin-Daho, February 2021).

The comments vocalized by this salt harvester confirm the idea that the Togbin-Daho mangrove is used for economic purposes. Women use it to produce a salt that they take to the market to make money. Apart from salt production, which is known as women income generating activity, men trade in the wood logged from the mangrove. Mangrove trees are harvested and sold to women salt harvesters or external actors. The following verbatim according to which

'the non-salt producers [men], the non-school attending young people or craftwork apprentices or trainees [...] go to the mangrove to cut down a lot of mangrove trees in order to sell them' (local elect officials, Togbin-Daho, January 2021) is illustrative in this respect. To certify the reality of that logging, mangrove harvested woods are sometimes sold to external actors, as an informant mentions: 'I have seen with my own eyes mangrove woods sold to people from elsewhere. They carry these mangrove woods in a tarpaulin-covered Lorries' (Madame, Togbin-Daho, January 2021). It is clear that mangroves are exploited for commercial purposes. Photo 1 shows a pile of mangroves for sale.

Picture 2 : Mangrove fire-woods harvested from Togbin-Daho



Source : cliché O. B. DEKPE, Togbin-Daho, 2021.

3.2. Discussion

The findings this research work comes up with confirm that the perceptions that the riparian populations have of the Togbin-Daho mangrove woods ingrain the deep causes of its destruction. Local rationalities such as *the mangrove is a space where cutting fire woods is a source of regeneration, the mangrove is a God gift*, are illustrative to this effect. Clearly, these local logics encourage the multiplication of anthropogenic destructive actions on the resource. The relationship that humans establish with natural resources therefore depends on the representations they have of it. This analysis fits in well with the theory of social representations, which 'offers a special insight for a better understanding of the relationship between individuals, the social groups and the environment [...]' (C. Garnier and L. Sauvé, 1999, p.65). Based on their local perceptions, the local populations make destructive uses of the Togbin-Daho mangrove. As mentioned above, these are domestic uses and economic uses of the mangrove. The cutting and marketing of mangroves inevitably lead to deforestation, a destructive phenomenon for the mangrove. In the same perspective, salt farming is, to a large extent, responsible for the destruction of the mangrove fire woods due to their irrational use for salt making (V. Orékan *et al*, 2018). The Togbin-Daho mangrove, being a public good over which a bundle of rights is exercised, is prey to over-exploitation which certainly places it in a vein, that of the theory of the tragedy of the commons (G. Hardin, 1968). Hardin states that a situation of free access to a limited resource, which is subject to human pressure, inevitably leads to its over-exploitation and disappearance if nothing is done. This issue is understood by the Beninese state, which intervenes in the governance of the Togbin-Daho mangrove through the prohibition of mangrove cutting and through public policies to protect this wetland. This intervention by the State with a view to the rational management of the collective good through the definition of access rules makes it possible to qualify G. Hardin's position. In other words, free access to a public resource does not always lead to its over-exploitation and destruction. This point of view is put forward by J.-L. Combes *et al* (2016) who mention that if the tragedy of the commons appears plausible in certain situations, it does not apply to all natural resources with the characteristics of the commons. With all due caution, it would, according to E. Ostrom (1990), it would be desirable to avoid drawing hasty conclusions that common goods are resources destined to tragedy, i.e., resources subject to irrational exploitation leading to their disappearance.

CONCLUSION

Adopting the qualitative approach of social science research, this article has methodically identified and analyzed the local perceptions that the riparian populations have of the Togbin-Daho mangrove firewood. These local rationalities, which are inter alia: *the mangrove is a space where wood cutting is a source of regeneration*

(1), *the mangrove is a God gift to feed the riparian population* (2), contain destabilizing seeds that, in turn, induce destructive uses of the common resource. The domestic and especially economic uses of the Togbin-Daho mangrove wood resources inevitably lead to its over-exploitation, a situation bringing back to mind the tragedy of the commons due to its free access. However, a critical reflection has made it clear that the fact that just a common resource is freely accessible is not enough for inducing its being doomed to tragedy, to irrational exploitation leading to its destruction. A collective resource, managed with a participatory and inclusive approach, could, a priori, be sustained and conserved for posterity.

Bibliography

- Bédard Emmanuel, 2012, *Les techniques de collecte de données : l'entretien qualitatif, les notes de terrain et les normes de transcriptions*, Québec, Campus de Lévis.
- Combes Jean-Louis, Combes-Motel Pascale et Schwartz, 2016, "Un survol de la théorie des biens communs", *Revue d'économie de développement*, 3-4 (volume 24), pp. 55-83.
- FAO et LEA, 2018, *Inventaire floristique et faunique des écosystèmes de mangroves et des zones humides côtières du Bénin*, Cotonou, UAC.
- Flick Uwe, Kardoff Ernst & Steinke Ines, 2009 : *Qualitative Forschung Ein Handbuch*, 7ème édition, Reinbek bei Hamburg, Rowohlt Taschenbuch Verlag.
- Garnier Catherine et Sauvé Lucie, 1999, "Apport de la théorie des représentations sociales à l'éducation relative à l'environnement - Conditions pour un design de recherche", *Éducation relative à l'environnement : Regards - Recherches - Réflexions*, 1, pp. 65-77.
- Groult Noëlle, 2010, L'évaluation en classe de FLE : les représentations sociales qu'en ont certains professeurs au Mexique, <http://www.linguistiquefrancaise.org> ou <http://dx.doi.org/10.1051/cmlf/2010041> , 439-449.
- Hardin, Garrett James, 1968, "The tragedy of the commons", *Science*, pp.1243-1248, doi:10.1126/science.162.3859.1243.
- Lavigne Delville Philippe et Hochet Peter, 2005, *Construire une gestion négociée et durable des ressources naturelles renouvelables en Afrique de l'ouest*, Rapport final de l'étude financée par l'Agence Française de Développement et Européenne, dans le cadre du projet de recherche INCO-CLAMS, Paris, GRET.
- Loi-cadre sur l'environnement en République du Bénin.
- Olivier de Sardan Jean-Pierre, 2003 : *L'enquête socio-anthropologique de terrain : synthèse méthodologique et recommandations à usage des étudiants*, Niamey, LASDEL.

- Olivier de Sardan Jean-Pierre., 2009, *Les huit modes de gouvernance locale en Afrique de l'Ouest*, Niamey, LASDEL.
- Orékan O. A. Vincent, Toffi D. Mathias, Hohodji Inès et Plagbeto Hermann 2018, "Dynamique spatiale des écosystèmes de mangrove dans l'arrondissement d'Avlo, Grand-Popo sur le littoral", *International Journal, of Scientific and Engineering Research*, volume 9, numéro 10, pp. 487-494.
- Ostrom Elinor, 1990, *Governing the Commons: The Evolution of Institutions for Collective Action*, Cambridge, New York, Cambridge University Press.
- Togbé Codjo Timothée, 2014, *Conflits entre acteurs dans la gouvernance des lacs Toho et Ahémé au Sud-ouest du Bénin*, Thèse de Doctorat Unique, Université d'Abomey-Calavi.
- Tremblay-Pepin Simon, 2013, Qu'est-ce que la tragédie des biens communs ? <https://iris-recherche.qc.ca> > blogue > quest-ce-que-la-trag, consulté le 08/02/2022 à 11h 30.