

## Original Paper

# Contribution of Communication to the Economic Evaluation of the Direct Use Value of Lake Dem in Burkina Faso

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### Abstract

*In Burkina Faso, wetlands play an important role in the country's economy. Dem Lake, one of the Ramsar sites of international importance inscribed in 2009, and is today facing severe degradation under the combined effect of climate change, poverty, population growth, and pressure from anthropogenic activities. Also, the goods and services of the Dem Lake ecosystems have not yet been studied to provide us with information on their costs. This lack of price leads local populations and political and private decision-makers to behave as if the value of the natural heritage is nil. The objective of this study is to assess the economic value of some supply services of Lake Dem. Thus, it is a question of identifying the main services provided by the lake and then estimating their economic value. The tool used is that of the market price technique. This technique measures the quantities of goods consumed or sold and determines the prices at which they are offered on the market. The research made it possible to identify consumer goods by sector of activity such as market gardening, agricultural production, fish production, grazing and the water resource provided by the ecosystem. Similarly, we were able to determine on the basis of the communication, the quantity of the various non-timber forest products that enter into household consumption. The results revealed that the total value of the supply services is estimated at more than two billion two hundred million francs (2,200,000,000) CFA. This estimate does not provide knowledge of the total economic value of Lake Dem, because it is only the direct use value of a few goods and services that have been assessed. Similarly, the indirect use, option and bequest values have not been assessed.*

**Keywords**

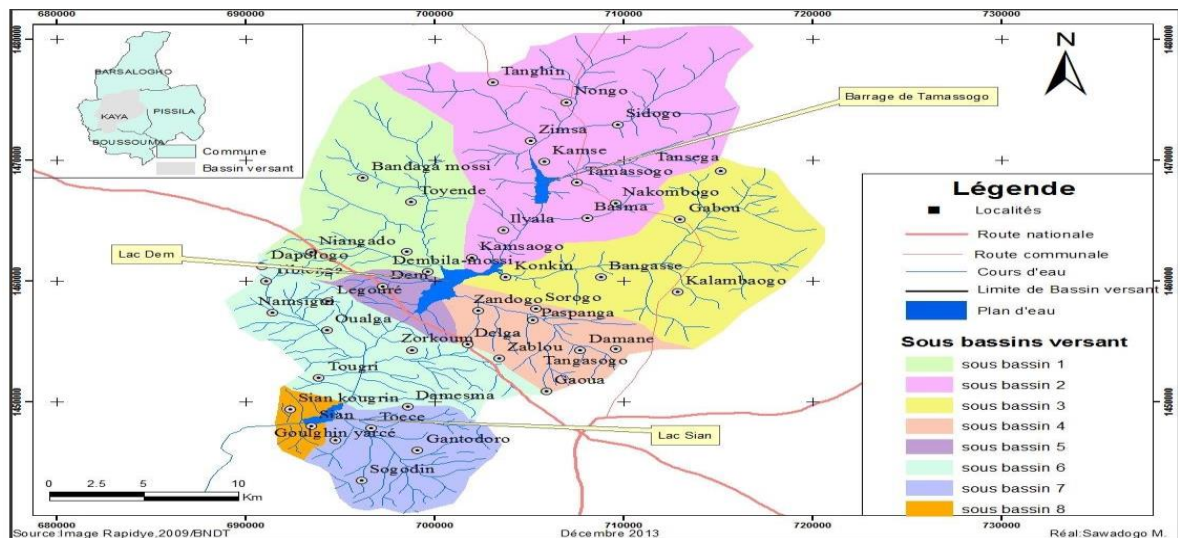
*Lake DEM, Water, Ramsar site, climate, ecosystems, collection Communication, economic value, Burkina Faso*

**1. Introduction**

Burkina Faso is a Sahelian country whose development is intimately linked to its non-renewable natural resources. Among its natural wealth, one can find a diversified fauna and flora as well as ecosystems of particular importance. At the national level, the will to take responsibility for the preservation of the environment is gradually increasing. However, it should be noted that environmental concerns are still relegated to second place in a country marked by great poverty and significant social inequalities. This finding is worrying because economic development in Burkina Faso relies to a significant extent on the exploitation and development of its natural resources. Wetlands are production sites par excellence for the socio-economic development of populations through the implementation of activities such as the exploitation of flora and fauna products; agricultural and vegetable production (tomatoes, onions, cabbage); livestock development; energy production (Kompienga and Bagré hydroelectric dam); the development of tourism (Bagré tourist complex, Arly tourist camp). Lake Dem, the subject of this research, is located in the Sahelian zone marked by semi-aridity which gives water points a capital importance. This state of affairs explains the high concentration of populations around Lake Dem, which offers them goods and services.

**2. Lake Dem in the Geographical Universe of Burkina Faso**

Lac Dem is a resource shared by the village lands of Tonkin, Dembila and Dem. The lake area belongs to the Nakambé watershed. According to the geographical surveys of Ouattara and Ouédraogo (2009), the lake is centered at point 13°12'N and 01°09'50"W. The total area of the lake area (only) is 1,354 ha. is covered upstream by the classified forest of Dem (350 ha). The depth of the lake is estimated at 2.3 m. It extends over more than 6.5 km long and 1.1 km wide in period of high water (Ouedraogo, 2006).



**Category n 1. Location of Lake Dem in the Geographical Universe of Burkina Faso**

*Sources:* Field surveys October 2022.

The increase in needs and growing pressure on land have led to overuse of the soil. Similarly, the extension of agricultural activities and illegal logging have led to significant deforestation. For example, despite the protective measures taken by the Environment and Sustainable Development services, fraudulent and anarchic logging persists both in village areas and in the classified forest of Lake Dem (Management Plan for Lake Dem, 2014). Consequently, all these actions carried out by man to meet his needs in a context of climate change and accentuated more and more by the population growth, have led to a degradation of this ecosystem. The undervaluation of certain ecosystem goods and services of Lake Dem does not allow for effective management. This communication study, based on the ecosystem approach, aims to highlight some of the benefits of this ecosystem in order to allow the implementation of appropriate management measures for the conservation of biodiversity but also the maintenance of ecological services. In a context of sustainable development. This specifically involves identifying the main ecosystem goods and services of Lake Dem and subsequently estimating the value of direct uses and the role and positive effects of communication for the benefit of the various actors in the process, chain.

### *2.1 A Methodology in Three (3) Steps*

The methodological approach adopted in the context of our study is presented in three stages, namely sampling, data collection, discussions and analysis. s. The study focused on households bordering Lake Dem. The targeted households are those who benefit from ecosystem goods and services such as: fisheries resources, drinking water, market gardening and agricultural products, non-timber and timber forest products. Thus, out of the fourteen villages that benefit from the ecosystem goods and services of Lake Dem, eight villages were selected given their proximity to the lake. As part of the study, the sample retained was made by reasoned choice. The sample is made up of women for questions relating

to non-timber forest products because they are the main players in this sector. Regarding other activities such as market gardening and fishing, questions were addressed to men. Table 1 below shows the distribution of respondents according to their relationship with the ecosystem goods and services of Lake Dem.

**Table 1. Distribution of Respondents by Village and by Activity**

| <b>Villages</b>      | <b>Actresses in<br/>NWFP</b> | <b>fishermen</b> | <b>market gardeners</b> | <b>Total</b> |
|----------------------|------------------------------|------------------|-------------------------|--------------|
| <b>Dem</b>           | 10                           | 6                | 10                      | <b>26</b>    |
| <b>Dembila-Mossi</b> | 10                           | 9                | 10                      | <b>29</b>    |
| <b>Dembile-Peulh</b> | 10                           | 0                | 10                      | <b>20</b>    |
| <b>Kamsaogo</b>      | 8                            | 6                | 10                      | <b>24</b>    |
| <b>Konkin</b>        | 10                           | 4                | 10                      | <b>24</b>    |
| <b>Ilyalga</b>       | 8                            | 4                | 10                      | <b>22</b>    |
| <b>Zandogo</b>       | 10                           | 10               | 10                      | <b>30</b>    |
| <b>Zorkoum</b>       | 10                           | 8                | 10                      | <b>28</b>    |
| <b>Total</b>         | <b>76</b>                    | <b>47</b>        | <b>80</b>               | <b>203</b>   |

*Source:* 2022 survey data.

## *2.2 A Method for Collecting, Analyzing and Processing Data*

The surveys took into account 203 individuals divided between 76 women for questions relating to NTFPs, 47 fishermen and 80 market gardeners. The literary review consisted of collecting secondary data to better understand our subject. These documents were mainly collected from the Regional Department of Environment and Sustainable Development, the IUCN Regional Office, on the Ramsar website and from IUCN, the Environmental Governance Consolidation Project (COGEL) and in libraries. Primary data collection was done using questionnaires adapted to the type of target group to be surveyed and interview guides. The individual surveys concerned fishermen, market gardeners and NTFP consumers. This allowed us to identify the main ecosystem goods and services on which the economic valuation focused. Concerning the data on pastoral resources, drinking water and cereal crops, these are secondary data that were collected directly from the Provincial Directorate of Animal Resources, the Directorate Provincial Office of Agriculture and the National Office of Water and Sanitation all located in Kaya. The research focused on part of the direct use value. The data analysis focused on market consumer goods. The economic value of market goods provided by Lake Dem was determined by the technique of market prices. The market price technique estimates the economic value of ecosystem products or services that are bought and sold in markets (Boyer, 2013, cited by Dechezlepretre, 2013). This method uses

standard economic techniques to measure the economic benefits of traded goods based on the quantity of those goods that consumers procure at different prices and, on the producer side, the quantity supplied at varying prices. It will then be a question of multiplying the average price by the average quantity of each type of product to determine the monetary value.

### 3. Discussions and Analysis

#### 3.1 Economic Evaluation of Seasonal Agricultural Production

Agriculture is one of the main activities of the locality. The shores of Lake Dem are occupied by cereal crops in the rainy season and in the dry season by market gardening. Maize, sorghum, millet, cowpea and peanuts are the main food and cash crops in the area and are most often produced for self-consumption and marketing. During the dry season, as the water recedes, it leaves surfaces rich in silty deposits that are very favorable for market gardening. This leads to strong pressure from market gardeners on water resources for this activity because it generates income. Indeed, according to GRAD (2007) market gardening takes no less than 4 million m<sup>3</sup> of water per year with an estimate of the economic value of the resources and achieved through the various cereal productions in accordance with Table 2 below.

**Table 2. Cereal Production (2013-2014) in the Province of Sammatenga**

| Speculations   | But    | Mil    | Sorghum | Peanut | Cowpea |
|----------------|--------|--------|---------|--------|--------|
| Area (ha)      | 6,285  | 32,357 | 78099   | 10,680 | 7,926  |
| Production (t) | 10,489 | 38,090 | 96,681  | 8,294  | 48257  |

Source: General Directorate of Statistics and Sector Studies (DGESS) / DPA.

On the basis of the data in Table 4, the production (in tonnes) is deduced from each speculation in the eight villages concerned by the study, knowing that the province of Sanmatenga has 386 villages within it. Thus the selling price of each cereal product on the markets of Dem and Kaya made it possible to estimate the economic value of agricultural land in the eight villages at a total amount of nine hundred and thirty million zero eighty thousand francs (930. 080,000) CFA. Sorghum and cowpea are the main crops in the area with a production of 2,000 and 1,000 tonnes respectively per year. These crops represent respectively 50% and 28% in the total monetary value of rainfed agricultural production which is 930,080,000 FCFA. Indeed, in the HEA Kaya final report, the main agricultural productions in the study area are sorghum and millet for food crops, cowpeas and groundnuts as cash crops. According to the estimates obtained, groundnuts and maize represent respectively 168 tons and 216 tons, i.e. 6% and 3% of the total monetary value. According to the HEA Kaya final report, maize is very often grown in hut culture, which explains its low production.

### *3.2 Evaluation of the Economic Value of Market Gardening*

Market gardening plays a considerable economic role for the populations. It is a source of substantial income that allows local populations to supplement the income from the sale of their cereal and cash crops. This activity contributes to limiting the rural exodus by providing young people with relatively profitable activities. The land is also occupied by producers from other towns such as Ziniar é and other villages located in the Lake Dem watershed. This area supplies the whole of the Centre-Nord region with products as varied as tomatoes, onions, aubergines, cabbage, peppers, potatoes, sweet potatoes, etc. These products are intended for local and sub-regional consumption. While the green bean is produced for the European market. Ghanaians and Togolese are the main buyers of market garden produce, especially tomatoes.

Vegetable products are sold at prices which fluctuate according to their availability on the markets. The study identified the minimum prices of some market garden products such as the tomato which is sold at 1500 FCFA per box. The onion and the pepper are sold in 50 kg bags respectively at 5000 Fcfa and 2000 Fcfa. As for the cabbages, they are sold at 4000 FCFA in 100kg bags. Thus, the monetary valuation of market gardening is obtained on the basis of the assumption that 100% of households, that is to say 1031 households are market gardeners. This hypothesis also allowed us to determine the total quantity of tomato, onion, cabbage and peppers sold by households for an overall cost of four hundred and forty-eight million nine hundred and eighteen thousand five hundred francs (448,918,500) FCFA.

The total monetary value of market garden products sold at the minimum price is 448,918,500 CFA francs. This value represents the quantity of market garden products offered by producers at a minimum price on the markets. Indeed, the more the quantity offered on the market is important, the more the good is sold at a low price. The period of abundance is spread over about five months, that is to say from October to February. The price variation at the level of each crop influences the total monetary value of vegetable crops. Thus, the monetary value of market garden crops sold at the maximum price amounts to the sum of One billion two ninety-four million five hundred nine thousand five hundred francs (1,294,509,500) CFA.

From this table above, it appears that the price of the box of tomatoes is 5500 FCFA at its maximum. The onion and the pepper are sold in bags of 50 kg respectively at 10000 Fcfa see 15000 Fcfa and 10000 Fcfa. The rarer the property becomes on the market, its selling price rises to 10,000 FCFA or even 15,000 FCFA. As for cabbages, they are sold at 10,000 FCFA per 100 kg bag. When the market gardening activity comes to an end, the goods become increasingly rare on the markets, which leads to an increase in the selling price of these products. The estimate of the total monetary value of market garden products sold at the maximum price by the 1031 households of the eight villages selected for the study is 1,294,509,500 CFA francs. The minimum and maximum prices, obtained for each speculation, make it possible to determine their average prices in order to estimate the total monetary value of market gardening in the eight villages of eight hundred and seventy-one million, seven hundred and fourteen thousand francs (871,714,000) FCFA.

The average prices of tomato, onion, cabbage and peppers are respectively: 3500 Fcfa, 7500 Fcfa, 7000 Fcfa, and 6000 Fcfa. The estimate of the value of market gardening for 1,031 households in the eight villages selected for the study amounts to 871,714,000 CFA francs. The marketing of market garden products in the area is subject to several difficulties which lead to the dysfunction of the market. Indeed, the development of market gardening in the area has not been accompanied by a market development policy with adequate structures. There is a lack of storage structures (store, cold room). Faced with the seasonality and perishability of products, this leads to enormous losses for producers and traders. Market gardeners do not have the possibility of storing and processing products during periods of high production. This results in price instability that disrupts the effectiveness of adjustments between supply and demand in the markets.

### *3.3 Evaluation of the Economic Value of the Pastoral Resource*

The Dem Lake ecosystem offers relatively rich natural rangelands for feeding herds, but fodder production is characterized by strong seasonal variability, both in quantity and quality. The species bred are cattle, sheep and goats. The quantities produced meet less and less the needs of local livestock. The lack of a common grazing area causes herds to move to land not yet occupied by farmers in search of food. Indeed, according to Ouattara and Ouédraogo (2009), access to water and pasture are subject to competition between market gardeners and the very numerous breeders in the area. The former occupy more and more of the banks, destroying the pasture and leaving the animals only a strip of land to access the water.

The breeding activity occupies a major social and economic place among the populations bordering the lake. According to the inter-village land charter for the management of Lake Dem/Sian, access to this space is free for all herds of less than a hundred head. To assess the economic value, we used the metabolic weight ratio technique used by Somda et al. (2010) to estimate the value of forage consumed by livestock. According to these authors, the quantity of forage consumed daily by an African zebu is estimated at 6.25 kg of dry matter on average with strong seasonal variations and according to the nature and availability of the forage. In the early warning system (SAP) of some Sahelian countries, dry matter requirements are calculated on the basis of 1.7 t of DM/UTB. The data from the field survey indicates an overall estimate of dry matter around Lake Dem at a net amount of thirty-three million four hundred and ninety thousand eight hundred and fifty francs (33,490,850 CFA) either by cattle to 6,698,170 kg and its total monetary value is estimated at 33,490,850 FCFA. This value is minimal because grazing areas are insufficient all along the watercourse. To overcome this food shortage, breeders use crop residues (the stems and leaves of crops: cereals, oilseeds, legumes).

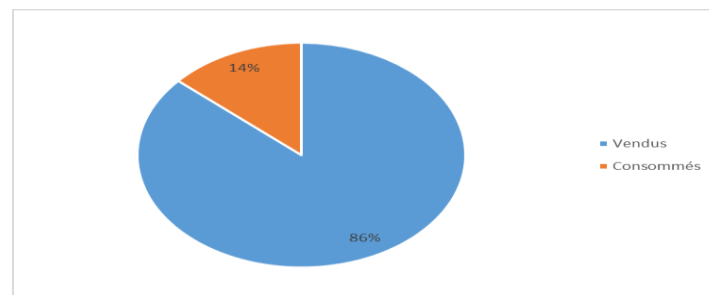
Also, the livestock sector generates food by-products such as milk and non-food by-products such as skins and horns which are generally sold in the markets of the commune of Kaya. Indeed, in this region there is a strong production and transformation of skins into traditional craft products. These products are exported to Ghana, Nigeria and Europe (TRAORE, 2012). The leather sector represents 21.5% of the local GDP. The sector includes tanning, marketing of hides and skins, leather dyeing and leather

craftsmanship (leatherwork, pyrography and leather upholstery). It is therefore necessary to develop grazing areas to be able to accommodate a very large number of livestock so that breeders can derive more benefit from them.

### 3.4 Assessing the Economic Value of Fishery Resources

Fishing is one of the activities carried out by the local populations of Lake Dem. Surveys show that the favorable weather for fishing lasts between 4 to 5 months and the rest of the month is considered to be the period when activity is slowing down. The main species of fish sold are catfish, sea snails, sardines, carp and prawns. We found that fishing is not the main activity of fishermen. Fishing only comes in third place after agriculture and animal husbandry. Inspired by the categorization of fishermen carried out by FAO (Bado et al., 2007), we can say that Dem Lake fishermen belong to the category of semi-professional fishermen. Alongside the latter evolve occasional fishermen whose practice of the activity remains a hobby.

Thus the fish caught are mainly sold fresh or smoked. The smoking of fish is an activity reserved for the women generally wives of the fishermen within the family framework. There are no professional smokers as noted around other water points such as the Kompienga and Bagré dams. In Lake Dem, a fisherman sells an average of 857kg of fish per year and obtains an average amount of 417,160 FCFA per year and the quantity of fish devoted to consumption Figure n°1 below indicates the percentage of fish sold and that reserved for consumption.



**Figure 2. Percentage of Fish Sold and Reserved for Consumption**

Source: Survey data, (2022).

Based on the estimates made, the quantity of fish taken from Dem Lake is 46,595 kg/year. The quantity of fish intended for family consumption is 6,293 kg/year, or 14% of the total fish harvest. This is equivalent to 3,146,500 FCFA. The quantity of fish sold is 43,302 kg/year, or 86% of the total. The amount obtained for this sale is 19,606,500 FCFA. In short, the total monetary value of the halieutic resource is 22,753,000 CFA francs. The quantity of fish taken from Dem Lake is low due to the siltation of the body of water and the development of prohibited fishing practices such as poisoning the water with pesticides used for agriculture. According to the fishermen, the lack of equipment such as canoes and nets does not allow them to take large quantities of fish from the lake. As well as the



caimans can be a means of tourist attraction, it should be noted that they represent a danger for the fishermen. Indeed, frequent attacks often take place. Fishermen's nets are regularly destroyed by caimans when they find themselves trapped in them.

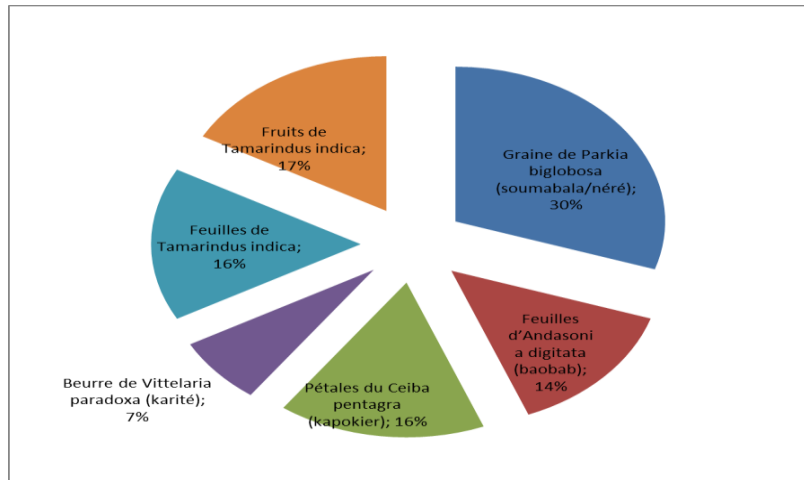
### *3.5 Assessment of the Economic Value of Drinking Water*

The local population of Lake Dem uses the water mainly for irrigating market gardening plots and watering livestock. The city of Kaya located 15 km from the lake, to overcome the problem of drinking water supply has since 2006 used Lake Dem to supply drinking water. Indeed, before the exploitation of Lake Dem, two (2) wells and fourteen (14) boreholes were used as supply systems for the city of Kaya (COULIBALY, 2011). The water from Lake Dem is also used to supply drinking water to the town of Kaya. The number of people who obtain water from the drinking water network provided by Lake Dem is approximately 43,520 individuals (COULIBALY, 2011). The demand for water is increasing. The National Water and Sanitation Agency (ONEA/ Kaya Center Agency) is responsible for supplying the city with drinking water. The ONEA of Kaya sold 1,086,880 m<sup>3</sup> of water and collected 303,695,274 FCFA for the year 2013. It should be noted that the ONEA takes water for free like so many other users. Indeed considered as a common good, there is a rivalry that takes place on the resource. Would it not be necessary to apply the user-pays principle on this resource since the fourth principle of IWRM considers it as an economic good? Based on article 7 of the charter, we estimated at 54,344,000 FCFA the tax that ONEA could pay to the community. This sum is a considerable loss for local authorities who could use it to self-finance activities to protect water resources and promote the goods and services provided by Lake Dem. Large tanks of more than twenty thousand (20,000) liters. We deducted the number of cisterns we could have in 1,086,880 m<sup>3</sup> assuming this represents the amount of raw water taken.

### *3.6 Assessing the Economic Value of Non-Timber Forest Products*

Woody and non-woody species play an important socio-economic role: the fruits are sold and consumed by people and animals, the leaves, barks or roots are used in the local pharmacopoeia, consumption, and used as a source of food. 'energy. Parks of *Acacia albida* are abundant there and are subject to intense pruning for fodder purposes. The fruits and leaves from these trees are used as food products by households in the study area. Non-timber forest products (NTFPs) are defined as any material of animal or plant biological origin other than wood, originating from forests or other wooded land or from trees outside forests (FAO, 2001, quoted by Ouédraogo et al.). The collection and processing of NTFPs is done particularly by women. They are present at all levels of the sector. The survey revealed that the NTFPs most consumed by households are: soumbala, baobab leaves, kapok tree petals, shea butter, tamarind leaves, tamarind seeds, balanites and Honey. In addition to purchasing, some women process certain NTFPs themselves just for family consumption; and for that they have to travel long distances to get it. The overall results are estimated at fifty-two million nine hundred and seventy-five thousand eight hundred and seventy-three francs (52,975,873) CFA. The products with the highest contributions are soumbala and tamarind fruits respectively with 16,101,127 FCFA and

8,997,537 FCFA per household. Shea butter is the NTFP with the lowest quantity and its value estimated at 3,941,513 FCFA. Figure 2 below shows the different shares of each NWFP in the total monetary value.



**Figure 2. Distribution of the Different Shares in the Total Monetary Value of Non-Timber Forest Products**

Source: Survey data, (2022).

The seeds of *Parkia biglobosa* transformed into soumabala have the largest share with 30% of the total, followed by the fruits of *Tamarindus indica* which represent only 17%. The leaves of *Tamarindus indica* and the petals of the kapok tree are 16% followed and the leaves of *Andasonia digitata* which represents 14%. Shea butter represents only 7% of the total monetary value of NTFPs. This low value is explained by the fact that more and more shea butter is replaced by industrial oils by householders which are accessible on the markets or in village shops. Problems related to the quality of processing and the marketing system limit the exploitation of this wealth. In addition to the difficulty of supplying NWFPs noted by housewives, most of them have hardly received any training in NWFP processing technique

### 3.7 Total Value of Dem Lake Provisioning Services

The study carried out was based more on the supply services of Lake Dem in order to highlight the benefit of Lake Dem. Table 3 below summarizes some ecosystem goods and services of Lake Dem in the eight villages contiguous to the lake.

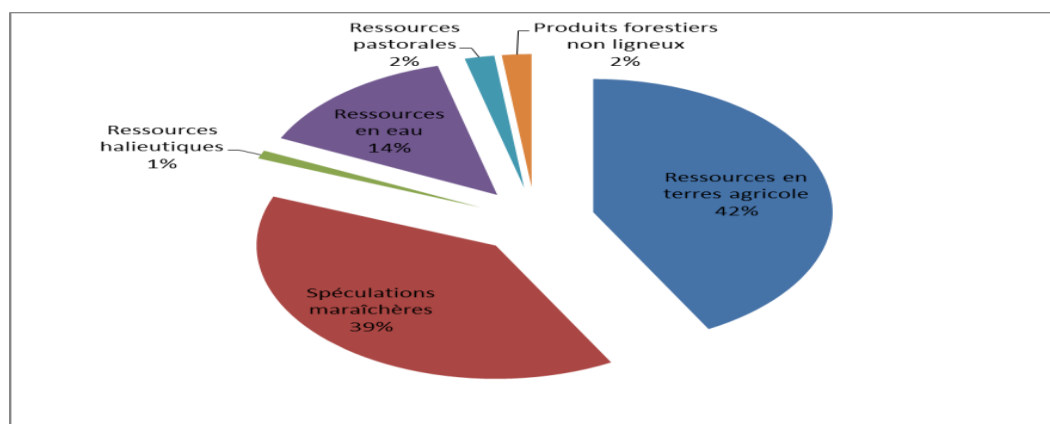
**Table 3. Total Economic Value of Dem Lake Provisioning Services**

| Resources                   | Total value (direct use) | Part % |
|-----------------------------|--------------------------|--------|
| Agricultural land resources | 930,080,000              | 42     |
| Vegetable crops             | 871,714,000              | 39     |

|                                   |                      |            |
|-----------------------------------|----------------------|------------|
| <b>Halieutics resources</b>       | <b>22,753,000</b>    | <b>1</b>   |
| <b>Water resources</b>            | <b>303 695 274</b>   | <b>14</b>  |
| <b>Pastoral resources</b>         | <b>33,490,850</b>    | <b>2</b>   |
| <b>Non-timber forest products</b> | <b>52,975,873</b>    | <b>2</b>   |
| <b>Total (Fcfa)</b>               | <b>2,214,708,997</b> | <b>100</b> |

Source: 2022 survey data.

The estimate of the value of market goods and services from the lake gives a monetary value of more than two billion two hundred million francs (2,214,708,997) CFA. This value is minimal because the study focused on the evaluation of the direct use value of some goods and services associated with Lake Dem. The value of agricultural production (cereal crop plus market gardening) which is 1,801,794,000 CFA francs is greater than that taken from the ecosystem around Lake Dem. The value of the goods taken (fish, NWFPs, pasture, water) in the lake is 412,914,997 CFA francs.



**Figure 3. Estimation of Different Shares in the Total Monetary Value of Non-Timber Forest Products**

Source: Survey data, (2022).

Figure 3 above shows that agricultural land resources and vegetable crops have the largest share in the total monetary value. Their share represents respectively 42% and 39% of the total monetary value. This means that agricultural production contributes enormously to the well-being of the people of Dem Lake. Indeed, this explains the strong mobilization during the dry season of the populations bordering the lake for the market gardening activity. Compared to the study that was made on the Sourou Valley, it is the wood resources that contribute more to the well-being of the population with a share of 37% of the total economic value of the Sourou Valley. At Lake Den, NWFPs represent only 2% of the total. This low value is explained by the effects of human activities, in particular deforestation, and climate change, i.e. the decrease in precipitation which contributes to the reduction of the vegetation cover. As

for water resources, pastoral resources and halieutic resources, they respectively represent 14%, 2% and 1% of the total monetary value. There are still enormous efforts to be made to enhance Lake Dem so that it can one day be a real pole of economic growth, worthy of the Centre-Nord region.

#### 4. Conclusion

By way of conclusion, we can say that wetlands constitute particular ecosystems for the preservation of biodiversity. They are also sources of various goods and services for local populations. This is the case of Lake Dem in Burkina Faso, which contributes to the country's economy and specifically to that of the Kaya region where it is located. Until now, the populations are almost in a situation of "laissez-faire" in the exploitation of the ecosystem resources of Lake Dem. This trend, in the long term, will irreversibly lead to the degradation of resources and will affect the well-being of the populations who depend heavily on them. Thus, this present research work, the first of its kind, is part of a set of actions aimed at estimating the values of this natural resource which are not known. Indeed, the objective of this study at the start was therefore to highlight the different use values of goods and services, five (05) in total of this wetland classified as a Ramsar site in 2009. To do this, a survey was conducted in eight neighboring villages. Thus, the agricultural activities with which cereal cultivation and market gardening are associated have a monetary value amounting to more than one billion CFA francs. As for the goods and services directly taken or provided by the lake, they record a value of more than four hundred million francs (400,000,000) CFA. The use value has a total monetary value estimated at more than two billion two hundred million francs (2,200,000,000) CFA. The relationships between natural resources and economic development have thus been highlighted through this assessment of the ecosystem goods and services of Lake Dem. The use value of Lake Dem, although interesting, somehow hides many difficulties that the sectors of activity are going through. Apart from the availability of grazing, which is increasingly rare on the shores of the lake, some problems exist. Use conflicts often oppose farmers and herders for the use of ecosystem goods and services. The fishing activity is not developed for reasons of supply of fishing equipment. Nowadays, the Lac Dem area is infested by terrorists, making our study site inaccessible and infrequent. We therefore contented ourselves with similar previous studies on the same site to carry out this study with old data. Water, considered an economic good by the IWRM, is withdrawn free of charge by the farmers for irrigation in the fields and the ONEA of Kaya for Thus, the adoption of measures meeting both human needs and those of the ecosystem, to find a balance between development actions for the well-being of populations and actions for the rehabilitation and protection of natural resources in our country Burkina Faso.

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