Functional Analysis of the Moringa Oleifera Value Chain in Djirataoua Municipality

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ABSTRACT: This study focuses on the functional analysis of the Moringa value chain. The objective of this study is to map the actors of the value chain, identify the mode of governance as well as the constraints and opportunities for the development of the value chain. The qualitative methodology consisted of conducting focus groups with key informants among the suppliers of agricultural materials and inputs, producers, processors, traders, consumers and other resource persons. The results showed the existence of five links, which are the link supplying materials and inputs, that of production, processing, marketing and consumption. However, the actors who lead these links suffer from an organizational problem. Also, the results show that the value chain encounters huge problems such as parasitic problems. Nevertheless, opportunities exist to develop the Moringa value chain.

I. Introduction

Small family farms play a significant role in the production systems of developing countries. These small family farms are generally based on economic systems combining production intended for self-consumption and market-oriented production. The growth in demand for various products, induced by demographic growth, urban explosion and the rise in purchasing power, has contributed to increasing the share of production intended for local, regional, national and even international markets. The growing involvement in the functioning of markets has considerably strengthened the role of small agricultural producers in value chains. It is important to note, however, that the share of the benefits that these actors derive from their participation in value chains depends largely on their understanding of the general functioning of the value chain, the transparency of information and communication along the chain, and their bargaining power. Unfortunately, in many cases, the isolation in which small producers are confined rarely militates in favor of a good understanding of the structure and functioning of markets. The organizational deficit and the lack of information on prices are serious handicaps that could compromise their chances of making the most of their participation in the markets. This is how this study is conducted to map and analyze the governance mechanism of the Moringa value chain in Niger. Indeed, in Niger the leaves, fresh or dried, are used as food in households. The powder of the dried leaves is used as a nutritional supplement in school canteens, dispensaries, maternities, nutritional recovery centers but also restaurants (Bationo, 2007). All products derived from Moringa are sold, but it is the marketing of the leaves that is much more developed. According to Bonkoungou (2001), in Niger where marketing is organised, the
leaves are sold fresh or dried in the sun, and stored for sale out of season. However, if the exploitation of the products of this plant makes it possible to improve the food of the populations, to generate income for the producers (Rajangamet et al., 2001), it is then necessary to carry out a socio-organizational analysis of the Moringa value chain in the commune of Djirataoua in order to characterize the actors as well as the strengths and weaknesses, opportunities and threats.

II. Materials and method

2.1 Materials
Interview guides and survey questionnaires are conducted with each link for data collection. These tools concerned the main villages in terms of production, marketing and processing of Moringa.

2.2 Methodology
Mapping a value chain, essential for any value chain analysis, illustrates how the product moves from raw material to end markets and indicates how the sector operates (UNIDO, 2011). It makes it possible to reduce the complexity of the economic reality of the chain with its various functions and its multiple stakeholders, their relationships of interdependence. Indeed, the cartography will make it possible to visualize:

- the various functions relating to production and distribution;
- the actors who assume these functions;
- the vertical commercial relations between these actors.

According to Furaha (2018), these three elements represent the microeconomic level of the chain where added values are generated. Value chain support services and meso-level supports can be included in value chain mapping (GTZ, 2007).

According to ARRAHMOUNI et al, (2018), two types of approaches are used to develop value chain mapping, in particular the functional and institutional approach and social network analysis (SNA).

The institutional and functional approach, starts by constructing a “preliminary map” of a particular chain to give an overview of all the actors (institutional analysis) and the type of interaction between them (functional analysis). The FAO methodology includes three essential aspects for the development of a preliminary map (FAO, 2005), including the main functions at each stage, the agents performing these functions and the path of the main products along the chain. It should be noted that the flows are quantified in monetary terms in order to assess the relative importance of the different stages of the chain.

As for the analysis of social networks, it relates to relational theories making it possible to formalize social interactions in terms of nodes and links. The nodes are usually the interacting social actors or institutions and the links are the relationships between these nodes. A social network is modeled to form an analysable structure where effective links between nodes are studied. This approach serves as a tool to map and analyze the relationships and flows of the value chain when it is characterized more by a network than by a single vertical chain (ARRAHMOUNI et al, 2018).

The first phase of the methodological plan is the realization, at the level of the zone, of a diagnosis of the existing situation for all the links in the Moringa value chain, from production to marketing via valorization, while indicating the mode of organization and the current structure of its market. Thus, the diagnosis of the current state of the said sector was carried out through bibliographic research and investigations on the organization of the sector, the actors, their practices, the constraints to the development of activities, the interventions of institutions, the strengths and potentialities and development prospects of the sector. This descriptive analysis of the primary and secondary data facilitated the conduct of the functional analysis which determines the role of each agent in the operation of the agricultural chain and makes it possible to schematize the flows which operate there in the form of a map.
III. Results and discussion

The moringa value chain is made up of a wide variety of actors with specific goals and interests. It also has several dimensions with regard to the actors who drive its primary and secondary production as well as its marketing.

3.1 Organization of value chain actors

The actors have been described through their organizations within each link.

3.1.1 The basic chain and its actors

Actors are those involved in the production, processing or marketing of a product in the value chain. They are divided into the five links, namely the supply of agricultural inputs and equipment, production, processing, marketing and consumption. These actors are located at the microeconomic level of the chain.

3.1.1.1 Input suppliers

There is the presence of some input suppliers in the production areas with unorganized seed operators.

a) Characteristics of agro-dealers

The socio-economic characteristics of the distributors of inputs (fertilizers and pesticides) interviewed revealed that they are all between 25 and 65 years old. One-third (57%) of them have primary education, 8% secondary education and 35% are illiterate. The input distributors are all married men and are traders by profession, specializing in the sale of agricultural products in the major rural centres. They also frequent the weekly markets (or collection market) in the production area to offer a range of products including inputs in makeshift sheds or stalls. These unorganized players because they evolve individually, get supplies from neighboring countries, especially Nigeria, with products of sometimes dubious quality. In addition, it should be noted that the CAIMA (Agricultural Input and Equipment Supply Center) is an important player in the supply of fertilizers subsidized by the State, even if the needs of producers in the latter are not covered each year. However, with the new reform which consisted in liberalizing the import and distribution of fertilizers, producers had to face a price increase. Thus, the price of 50kg of fertilizer (urea) went from 13,500 to 25,000 FCFA.

b) Type of products sold by input suppliers

Inputs provided by private distributors include pesticides, fertilizers. Input distributors buy their inputs from importers and sell them to producers or other retail input distributors. Indeed, moringa is not very demanding in terms of inputs apart from phytosanitary treatment products which constitute a major investment item for the producer. With regard to seeds, the majority of producers use those most often from their own production. The low level of inputs required for Moringa makes its production compatible with the resources of farmers (Nweke 2004) who generally have low financial capacities. Indeed, 90% of input distributors surveyed sell pesticides. Only 10% of them sell fertilizers. This is explained by the fact that these two products are those that are most sought after by farmers who are the most important actors in the value chain. The sale of pesticides by the majority of suppliers is explained by its repetitive use in farms to fight against the caterpillar defoliating leaves called *noordablitealis*.

3.1.1.2 Producers

Moringa is produced on farms within the irrigated perimeter. The area of these farms are plots of 0.16ha and 0.32ha. Indeed, 70% of producers have plots of 0.16ha. Moringa is grown in association with other crops such as maize, sorghum, okra, anice etc. However, there are producers who practice monoculture with the aim of intensifying production. The participation of family labor is very important in plowing and maintenance operations. This importance was observed by Pédélahore (2014) and Weber (1975) at the level of cocoa production. These producers are all members of cooperative societies. However, these actors operate individually both in the operations of the supply of inputs and materials and in the sale of their productions. The producers’ main customers are processors, wholesalers and rarely consumers. There is no formal contract between the producers and the other actors. Relationships are generally based on very strong social ties, particularly with processing...
actors. Indeed, each producer has his favorite client (processor) in his repertoire because of the family ties, the good neighborliness and the trust that reigned in previous exchanges. The latter buy the fresh leaves from the field on credit, which they process before paying the amount due. In the event of a loss during processing or a low profit margin, the producer sometimes grants a small reduction to the processors to retain their customers. However, when it comes to relations with wholesalers, it is the producer himself who transforms the leaves and stores them at home before selling them to wholesalers. The link between these last two actors is of a persistent type.

3.1.1.3 Transformer
Processing is one of the important steps in the value chain. However, the transformation of Moringa in the town of Djirataoua is carried out in an almost artisanal way. The actors of the transformation are composed of 77.4% of women and 22.6% of men. This proportion of women is similar to that found by the World Bank et al, (2009) on fruit and vegetable value chains where the proportion is 95%. These actors have an average age of 54 years with a standard deviation of 9.47. Moreover, 89% of processors are uneducated. Their average household size is 11 people with a standard deviation of 4.22. Moringa leaves oleifera. This involves the transformation of fresh leaves into dried precooked leaves and then the transformation of fresh leaves into dried leaves. The first is an exclusively female activity, while the second is practiced by both men and women.

The transformation into dried precooked leaves consists of the women going to buy the fresh leaves in the field which they harvest, transport to the house by means of a cart so that the leaves are separated from the glumes. Precooked Moringa is prepared according to the following steps: harvesting, stripping, cooking, drying and bagging. This process can take two to three days depending on the period. Pre-cooked Moringa can be stored in good condition for 6 months. Moringa pre-cooking is used as a business strategy by processors to postpone the sale of Moringa in order to obtain a better profit. The partners who assist the women in this activity are generally the members of the household, the neighbors who need these sprigs separated from the leaves for the feeding of their livestock. The main customers of these processors are wholesalers, retailers and consumers, and the unit of measurement is the tia (1 kg). However, there is no formal purchase contract between the processors and their customers. Links are based on social relationships. Indeed, the wholesalers are located at the local level while the retailers and the consumers are both customers who are at the local level but also from other regions of Niger.

As for the transformation of fresh leaves into dried leaves, it consists of tearing the stems of the leaves from the Moringa plants. The stems with their leaves are spread out in an area set up for drying. Drying takes a day in hot weather. The stripping is done by gently shaking the stems, then the dried Moringa leaves are piled up and sorted to remove impurities (this is cleaning) before bagging. The processor is assisted in this task by carters and hired labor who ensure the harvesting, bagging and transport. The main customers for this type of product are local wholesalers and semi-wholesalers who buy the bags at the drying place or at home.

It should also be noted that precooked Moringa has two main advantages over dried Moringa:

- For the same volume of fresh leaves, we obtain a volume four times less with precooked compared to dried Moringa. As a result, precooked Moringa is easier to store and transport;
- The preparation of precooked Moringa is much faster for the consumer than dried Moringa. This would explain the interest shown by urban customers for this product.

3.1.1.4 Merchants:
These players are made up of wholesalers, semi-wholesalers and retailers. The various stakeholders in the fresh leaf marketing chain often have multiple roles. The roles of producers and traders are often confused. There are many producers who come to sell their product themselves on the markets.
3.1.1.4.1 Wholesalers
Wholesalers are important players in the value chain. Indeed, the requirement in financial means means that these actors are limited in number. The socio-economic characteristics show that for wholesalers of precooked leaves, the female gender predominates with 80%, while for dried leaves the opposite situation is observed. Indeed, the women are between 35 and 60 years old while the men are between 25 and 65 years old. The analysis of their marital status shows that they are all married. The supply of dried leaf wholesalers is mainly from home growers and processors at the processing site. There is no purchase contract between these players. However, the links are based on very strong social considerations because the wholesalers always have the people identified for their supply. The significant financial means they have allow them to buy and store 500 to 2000 bags per year with a unit weight of 10 kg or 5 to 20 tons. Their main outlets are the markets of the 8 regions of Niger. For pre-cooked leaves, wholesalers get their supplies from women processors in their houses in order to resell to semi-wholesalers and retailers in Maradi and then in other regions of Niger. Even if formal purchasing contracts do not exist, the links between these actors are very strong and are based on trust and family ties. Furthermore, the mastery of product price information on the market (in Maradi, Niamey, Zinder, etc.) by traders in general gives them an advantage (power) in negotiations and business relations.

3.1.1.4.2 Semi-wholesalers
They act as intermediaries between wholesalers and retailers. These players are mostly men for fresh dried leaves, while for precooked leaves women are predominant with an age that varies from 25 to 64 years. Among the latter we notice the presence of widows while all the men are married. In addition, there is a significant presence of young people in this activity. They get their supplies directly from wholesalers and sell their products to retailers, sometimes directly to local consumers but especially those from other regions of Niger. Their financial capacity enables them to buy and store 50 to 100 bags per year, or 0.5 to 1 ton, to resell when the price increases on the market. Moreover, the relationships of semi-wholesalers with customers are not based on contracts, but on social considerations.

3.1.1.4.3 Retailers
This activity is practiced 100% by women for the sale of pre-cooked leaves, while men are found at the level of dried leaves. These retailers can be found in weekly rural markets as well as in urban markets. Given their limited financial means, they sell by tia (local unit of measurement) corresponding to 1kg. They get their supplies from producers or semi-wholesalers and sell the leaves to consumers who are mostly women (housewives, restaurateurs). It appears from the survey results that customers have a preference for cooked fresh leaves because of their organoleptic qualities. According to vendors, leaves with large leaflets have more flavor than those with small, thin leaflets. Conversely, those with small and thin leaflets swell more when cooked than those with wide leaflets. The different places where the product is sold are: homes, the main arteries of cities, restaurants and markets. The demand for cooked leaves being generally strong, the sellers have no problem with poor sales, especially during the Ramadan period. Even in the event of a slump, they say, you can keep the product and resell it the next day. According to these women, the sale of cooked moringa leaves is a very profitable activity. During the lean season, they manage to record revenue of around 20,000F / day. The hot season is supposed to be the period of high consumption.

3.1.1.5 Consumers
It represents the last link in the chain. The consumption of moringa is part of the dietary habits of Nigerien populations in both rural and urban areas. At the level of the villages in the study area, households hardly ever buy moringa for their consumption, but obtain it for free from neighbours. However, sourcing moringa for cooking remains a major challenge given the low household budget income in Niger. Most of the local production, especially the processed leaves, is almost exclusively intended for sale. The low quality of processed products means that certain categories of people prefer fresh moringa to processed ones.
3.1.2 Secondary channel and its actors.
The secondary chain is made up of actors who have a major asset for the development of the sector. These actors are located at the microeconomic level of the chain. They are made up of suppliers of inputs and materials for production and processing.

- Suppliers of plowing and weeding equipment (plough, dbu)
- Suppliers of phytosanitary protection equipment
- Solicitors (for commercial transactions)

In addition, we note the presence of service providers, particularly for transport (Taximan, truck, cart), and handling (Dockers).

3.1.3 Value chain supporters
These are actors who are found at the meso and macroeconomic level in the chain. These are the actors:
- research
- supervision and popularization
- policy makers
- Financing Institutions

Indeed, with regard to research, it is carried out by the Universities of Niger, in particular UDDM, UAMD, and research centers such as INRAN. This research is more focused on the management of pests and diseases that negatively impact moringa production. As for supervision and extension, it is provided by ONAHA. The latter ensures the technical and financial management of the perimeter. Moreover, in terms of financing, there are very few actors apart from PRODAF, which has built a market for market garden products that is not very popular, then the development of a drying site for women processors.

The following figure presents the mapping of actors.

![Figure 1: the links in the chain and its actors](image-url)
Governance refers to how the chain is organized, how exchanges are implemented, and the power relationships within the chain. The objective is to know the nature of this governance in order to adapt support for its development to the benefit of the poor.

Meetings with actors in the field revealed that there is very little relationship between actors in the Moringa value chain, both within a link and between links. The Moringa value chain is therefore characterized by a lack of organization of the actors. At the production level, all the actors operate individually. This situation does not allow them not only to plan their production in order to control the quantity put on the market, but also to position themselves in force in the negotiation of the price at harvest with wholesalers and processors. Indeed, even in terms of supplying inputs, small and large producers obtain them individually. With regard to marketing, there is no organization between local wholesalers or retailers and those of other regions of Niger such as Niamey, Maradi, Dosso which are regions that consume a lot of moringa from Djirataoua. The animators of this link operate individually. However, there are informal relationships between some wholesalers and retailers who are in other parts of Niger. Moreover, the problem of lack of organization is also observed at the level of the processing actors even if the situation is a little better at the level of the processors, with some of the actors belonging to informal associative groups.

In the Moringa value chain (CV), we notice a concentration of power at the level of the merchants regardless of the type of product. These are indeed the only actors to benefit from information on market prices, which gives them considerable bargaining power. For which is processing, this analysis highlights a very strong link between processors of pre-cooked leaves and retailers or consumers. The moral contract imposed by consumers who are loyal to these processors obliges them to produce a quality product, even sometimes working at a loss. An increase in the transparency of transactions within the Moringa value chain and Above all, an increase in the level of information and training of the players is necessary.

At the level of public governance, the PDES (economic and social development program) insists on the need for better financial governance and more effective security governance. It also stipulates that the growth of the formal private sector remains limited by the high cost of factors of production, in particular energy, which remains the main structural constraint affecting the competitiveness of the economy, the difficulties of access to markets and the poor access to financing, as well as weak human capacities.

### 3.3 Standards and Certification

The Nigerien Agency for Standardization, Metrology and Certification (ANMC) was created by decree No 2019-409 PRN/MI of 07/26/2019. It is responsible for implementing Niger's quality policy in terms of standardization, metrology and certification. It must ensure compliance with regulations, among other things, by checking the conformity of products for sale on the market. Other institutions involved are the Sanitary Service of the Ministry of Health, the Ministry of Commerce for repression. In terms of certification, none of the products processed at the zone level have been certified. We thus note the inadequacy of the quality approach and the absence of guides and guidelines for good practices in conservation, processing, packaging and labelling. Efforts must therefore be made to support the actors.

### 3.4 Tax policy and governance

The Nigerien tax system is governed by the General Tax Code (CGI) adopted by Law No. 2012-37 of June 20, 2012, which is structured in two (2) parts (or books):

- **The First Book relating to State taxes and duties;**
- **The second Book relating to the taxes and duties of the territorial collectivities.**

Various local and national taxes affect CV moringa. It is:

- **Customs taxes on imported moringa**: There is no real tax on moringa imported from Nigeria, for example. Within ECOWAS the circulation of food products such as moringa is free, while individuals and companies that market local or imported moringa are subject to taxes and income taxes;
The **market tax** is a tax levied at the level of retailers in the markets. It is a fixed daily tax of 100 to 200 FCFA variable according to the markets;

Other **marketing and transport taxes**: Like all products that circulate from one market to another, the internal and inter-regional trade of local moringa and imported moringa is affected by a series of indirect taxes on vehicles, tolls, gasoline, etc. To enhance the competitiveness of Moringa and encourage its export, special tax relief would be needed.

### 3.5 Business environment

Interviews with actors in the value chain revealed certain constraints such as:

- Difficulties in accessing the means of production and their high cost. It's about inputs for the primary production of Moringa; processing equipment and packaging; and transport for marketing);
- Difficulties in accessing credit at the level of the various links, in particular marketing and processing.

The shared-cost financing promoted by FISAN (support fund for food and nutritional security) and PIMELAN (integrated project for the modernization of agriculture and livestock) is a mechanism that is not generally accessible to vulnerable people. The setting up of a guarantee fund for poor actors could boost their activity.

### 3.6 Analysis of constraints, opportunities and proposals for action

#### 3.6.1 SWOT analysis

The SWOT analysis makes it possible to clearly and synthetically identify the development potentials and needs of the Moringa CV, using a table presenting the Strengths and Weaknesses internal to the CV, and the Opportunities and Threats external to the CV. These different factors are given in decreasing order of importance in each of the four boxes making up the table below.

**Table 1: SWOT analysis of moringa value chain**

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
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<tbody>
<tr>
<td>* Traditional and extensive production method in agroforestry fairly well mastered by producers, with significant yields *</td>
<td>* Traditional, extensive and artisanal processing methods *</td>
</tr>
<tr>
<td>* Good knowledge of the plant, its long life cycle, its requirements and its benefits *</td>
<td>* Cropping system sometimes not adapted (association with crops harmful to Moringa (Cassava, anice etc.) *</td>
</tr>
<tr>
<td>* Year-round harvesting, processing *</td>
<td>* Lack of policy of the State in the development of CDV Moringa *</td>
</tr>
<tr>
<td>* Good level of technical knowledge acquired by the producers *</td>
<td>* Insufficient technical supervision and know-how in production and processing *</td>
</tr>
<tr>
<td>* AHA Landscaping Investment Potential *</td>
<td>* Little support and structuring of producers and processors *</td>
</tr>
<tr>
<td>* Potential for equipping transformers with solar dryers *</td>
<td>* Mainly individual processing units; very few groups for equipment purchases and group product sales *</td>
</tr>
<tr>
<td>* Potential for equipping groups of women processors with modern equipment *</td>
<td>* Weight of manual labor on all the links of the CV *</td>
</tr>
<tr>
<td>* Some Moringa processing actors very concerned by the development of Moringa VC and its repercussions on health and the rural economy, and ready to engage in participatory dynamics with the State. *</td>
<td>* Low use of mechanization *</td>
</tr>
<tr>
<td></td>
<td>* Difficult access to credit: *</td>
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<tr>
<td></td>
<td>* Unorganized and informal marketing channels *</td>
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<tr>
<td></td>
<td>* Pricing of Moringa and its products varies according to the actors, without coordination. *</td>
</tr>
<tr>
<td></td>
<td>* Severely degraded hydraulic infrastructure and equipment in very poor condition due to lack of maintenance (drop in the water table). *</td>
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<tr>
<td></td>
<td>* Low access of producers to agricultural inputs in quantity *</td>
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<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Threat</th>
</tr>
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<tbody>
<tr>
<td>* Beginning of a strategic vision carried by the 3N initiative and the ME/ LCD, therefore an interest of the State. *</td>
<td>* Non-competitiveness of local Moringa products vis-à-vis those of neighboring countries, from a price point of view. *</td>
</tr>
<tr>
<td>* Growing domestic and international Moringa *</td>
<td>* Possible competition in the future from Moringa producers and processors in neighboring countries on the domestic *</td>
</tr>
</tbody>
</table>
**Functional Analysis of the Moringa Oleifera Value Chain in Djirataoua Municipality**

<table>
<thead>
<tr>
<th>Main constraints of the Moringa value chain</th>
<th>Key actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irrigation water difficulty</td>
<td>§ Rehabilitation of the irrigation system</td>
</tr>
<tr>
<td>Low valorization (transformation) of Moringa</td>
<td>§ Strengthen the capacity of actors on packaging, processing and conservation (technical mastery and processing and packaging equipment).</td>
</tr>
<tr>
<td>Low level of structuring and governance</td>
<td>§ Provide support and advice and set up a platform for value chain actors.</td>
</tr>
</tbody>
</table>
| Absence of a formal marketing framework    | § Establishment of points of sale specific to Moringa products.  
                                           | § Create a favorable export environment. |
| Low access to credit                       | § Establishment of microfinance institutions at the local level at the level of producers, traders and processors. |
| Lack of product visibility                 | § Organization of study tours for value chain actors  
                                           | § Creation of appropriate exchange platforms (in particular digitization, marketing, price information). |


### IV. Conclusion

The mapping of the value chain allowed the different links and these actors. These are the links: supply of inputs and materials, production, processing, marketing and consumption. The actors who lead the first link are made up of suppliers of fertilizers and phytosanitary products, plowing and processing equipment and evolve individually. As for the producers, they work on plots ranging from 0.16 to 0.32 hectares. These actors, although members of a cooperative, work without coordination in the operations of purchase of input and sale of production. With regard to the processing link, two types of processing have been identified in the area. This involves the transformation of fresh Moringa leaves into dried leaves and then into dried precooked leaves. This processing activity is dominated by women at 77.4% and is done in an artisanal and individual way. Indeed, the commercial partners of processors who are the traders bring their support in the collection and the transport of the product in the zone of study. Moreover, the analysis of business relations shows a lack of organization between the actors of the value chain. This situation is an obstacle to the development of the value chain. The SWOT analysis reveals that problems related to parasitic pressure, low financial resources and limited access to financial services constitute the main obstacle for the production and marketing of Moringa leaves.

**Recommendation**

From the research findings and conclusions, the following recommendations are made:

**Table 2: Main Constraints and Key Interventions of the Moringa VC**

* *presence of partners (USAID, World Bank, EU)*

* *Significant delay in Research/Development activities on Moringa compared to other West African countries*

* *impact of climate change (proliferation of pests, fungi) on Moringa farms*

* *- beginning of security instability in the area*

* *Lack of control over input prices*

* *Lack of Nigerian packaging industry. High price of imported wrappers and packaging*

* *Domestic markets almost satisfied, with a limited supply of new products, while export markets seem difficult to reach*

* *- Fraudulent night harvest by burglars*
### Functional Analysis of the Moringa Oleifera Value Chain in Djirataoua Municipality

<table>
<thead>
<tr>
<th>Paratic attacks and other diseases</th>
<th>§Conduct research on diseases, particularly during the wintering period. §Strengthen the capacity of producers to enter into an agroecological transformation process, using integrated pest management, biopesticides.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logistics</td>
<td>§ Make Moringa processing equipment available.</td>
</tr>
</tbody>
</table>

**Bibliographic references**


