

Review Article

Review of Enset (Tree Against Hunger and Drought) Value Chain Opportunities and Constraints in Agricultural Food Sector of Ethiopia

Jilo Wolde Bulcha* 

Department of Logistics and Supply Chain Management, Dilla University, Dilla, Ethiopia

Abstract

In sub-Saharan Africa Enset is widely dispersed wild plant species that ensures food security for many Africans. In similar view, in South and South-west parts of Ethiopia more than 20 million people depends on Enset as stable food and it is called drought tolerant food of root crop. Due to its multidimensional significant roles, its resilience and versatility during the times of famine Enset has earned the name 'The Tree against Hunger'. Besides, food items like 'Amicho', 'Kocho', and 'Bulla' are obtained from Enset for home consumption and marketing. Besides, the value chain is the full range of activities which are required to bring a product or service from conception, through the different phase of production which involves a combination of physical transformation and the input of various producer services, delivery to final consumers, and final disposal after use. Thus, the main intent of this article was to review the value chain of Enset from its respective opportunities and challenges from perspective of Ethiopia. Regarding to this, the information used in this paper was the secondary source information that was extracted from journal articles and dissertation papers. Then the collected information were analyzed qualitatively and presented in narrative ways. Finally, based on the review results of this article conclusions and recommendations are given in advances.

Keywords

Enset, Value Chain, Kocho, Bulla, Amicho, Enset Products

1. Introduction

In Eastern, Central and Southern parts of Africa Ensets are the plants that exist in wild forms. During the World War II it was served as an emergency food in Asia particularly in Vietnam [1]. Similarly, in sub-Saharan Africa Enset is widely dispersed wild plant species that ensures food security for many Africans in the food deficiency areas [2]. In South and South-west parts of Ethiopia more than 20 million people depends on Enset as stable food and it is called drought tol-

erant food of root crop [3]. For producers and users Enset is a multi-purposed indigenous food crop except roots every part of Enset plant is applicable for food and non-food purposes. Among Enset parts leaves are used for baking bread, for packaging, for shade to protect other species of crop like wheat from sun and rain, for making of mats, for sheets that used for sleeping and sitting, and for making women's skirts as cloth. In due process of local beer it is also used as a

*Corresponding author: jilowolde2015@gmail.com (Jilo Wolde Bulcha)

Received: 4 July 2024; **Accepted:** 25 July 2024; **Published:** 26 September 2024



Copyright: © The Author(s), 2024. Published by Science Publishing Group. This is an **Open Access** article, distributed under the terms of the Creative Commons Attribution 4.0 License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

brewing pot and the fiber is also used for making ropes, twines and sack [4]. Besides, studies revealed as during wedding and funeral ceremonials Enset has credible cultural values in some parts of Enset producing area. Here, Enset leaves can be used as decoration on tables on which wedding foods are eaten and at the funeral ceremony Enset pseudo stems are used for beating as drums. Also, the family members can cut the plant of Enset to express their sorrow during the death of their clan heads [5]. Concerning the production of Enset it can be harvested at any time, at any development phase and its fermented products can be stored for a long duration of time [6]. Due to its multidimensional significant roles, its resilience and versatility during the times of famine Enset has earned the name 'The Tree against Hunger' [7]. Besides, food items like 'Amicho', 'Kocho', and 'Bulla' are obtained from Enset for home consumption and marketing. Correspondingly, Enset products are used as a source of starch for domestic and industrial uses like making of paper, adhesives and for local medication for bone fracture, diarrhea, discharging placenta, for humans and animals [8]. Currently, the producers of Enset had motivated a lot to produce Enset products due to the augmentation of Enset product needs in hotels or restaurants of Ethiopia in urban areas [9]. Above and beyond, the value chain is the full range of activities which are required to bring a product or service from conception, through the different phase of production which involves a combination of physical transformation and the input of various producer services, delivery to final consumers, and final disposal after use [10]. Thus, the main intent of this article is to review the value chain of Enset from its respective opportunities and challenges from perspective of Ethiopia.

2. Objectives

Reviewing of the Enset value chain with its respective opportunities and challenges in agriculture sector of Ethiopia is the main objective of this article. More specifically, the article is dedicated to review

1. The trends of Enset production in Ethiopia
2. The value chain of Enset with their respective roles
3. The opportunities available in Enset value chain of Ethiopia
4. The constraints that observed in the value chain of Enset

3. Methodology

This paper was intended to review the value chain of Enset (tree against hunger and drought) with its respective opportunities and constraints in Ethiopia. Meanwhile, the information used in this paper is the secondary source information that was extracted from journal articles and dissertation papers. Then the collected information were analyzed qualitatively

and presented in narrative ways. Finally, based on the review results of this article conclusions and recommendations are given in advances.

4. Results of the Review

4.1. The Production Trends and Prominence of Enset in Ethiopia

The domestication of Enset as food item had dates back to the Neolithic period or before Neolithic period and the Enset also has been recorded as ancient historic and sustainable farming system of Africa and Ethiopia [8]. In Ethiopia above 3 million hectares of lands are covered by Enset and 20% of Ethiopians i.e. approximately 18 million people are depends on consumption of Enset where more than 0.69 million tons of Enset products are produced annually [11]. In the South and South West parts of the country the Enset products are served as symbol of a culture for a given nation while they celebrate the holidays and cultural occasions. As well, Enset producing farmers of Ethiopia expressed the importance of Enset as 'Enset is our life' because it has served for them as nourishment, cloth, house, cattle feed, plates, input for industries for production of paper, adhesives and also used for local medicine for humans and animals on bone break, diarrhea and discharging placenta [8]. Enset is also a multi-purpose crop that has special advantages for many Ethiopians when compared it with other cereal crops. Because, Enset has strong ability to preclude famine during shortage of rainfall by enduring elongated drought when other crops are unable to resist. Secondly, Enset ensures the food security of densely populated communities that faces a shortage of land by offering higher products per unit area than other crops that produced within similar scope of land [1]. Thirdly, the processed items of Enset food products can be stored for long period of time with little storage loss that offers strong chances of sustainability for poor households during the periods of food scarcity [4]. Fourthly, Enset plants can be harvested at any time and at any growth stages by allowing the producers to pass the date of food shortage [12].

4.2. The Value Chain Actors of Enset

The value chain actors are the stakeholders such as input suppliers, producers, processors, collectors, wholesalers, retailers, transporters and consumers that perform various value adding activities in growing, processing, marketing, storage, transporting and consumption stages of Enset plant [13]. In Enset value chain input suppliers are the first level Enset value chain actors (farmers, agriculture and rural development officers and traders) who are responsible for supplying inputs like animal manure, compost and farming materials that used as a farming inputs in production of Enset [14]. Besides, producers are Enset growing farmers that have

specific roles like preparation of land for planting of Enset, planting enset, harvesting, processing and marketing of Enset products in the value chain of Enset [15]. Also, collectors, wholesalers and retailers are another class of Enset value chain actors of whom the collectors can collect the Enset products from farms and local markets then to sell them to wholesalers and retailers. Similarly, the wholesalers are the value chain actors who purchase huge amount of Enset products from producers or collectors and supplied them to retailers and final consumers. Likewise, retailers are the value chain actors that purchase enset products from wholesalers and sell them to consumers by dividing them in small quantities [16]. Furthermore, processors and consumers are known value chain actors of Enset that purchase Enset from farmers to produce bulla and fiber. At this moment they filter Bulla from Kocho, store bulla, dried bulla and sell the bulla in kilograms by packing in small plastic material to hotels and household consumers. Also, they purchase fiber products directly from farmers for further processing to produce sack, rope, mat, and other product where the Sacks are produced mainly for coffee exporting [17].

4.3. Value Chain Constraints of Enset

The paper of different authors revealed different results regarding constraints observed in the value chain of Enset in Ethiopia. Accordingly, shortage of modern technologies that support production, processing and marketing of enset products, fragmented linkage of value chain actors, low selling price of Enset products, poor road infrastructure, weak government institutions to support farmers, weak extension service in farmers area that supports productivity and marketing of Enset, lack of expertise that trained in Enset science, weak information flow among the value chain actors, weak network between producers and consumers, packaging problems, poor market policies, lack of market access and lack of warehouse services are critical constraints in the value chain of Enset [18]. Similarly, limited access to credit, transport facilities, and extension services, lack of coordination among the value chain actors, the high transaction costs associated with transportation and labor involved in reaching distant markets are the value chain challenges of Enset in the country [7]. Besides, the research of [16] have reflected lack of research and development for addressing the value chain challenges of Enset producers and other value chain actors, introduction of new cereals and short term alternative crops that shifted the focus of farmers from the production of Enset, recurrent droughts and pests are another constraints of Enset value chains in Ethiopia. At the farm level, the major production constraints are the shortage of improved high yield varieties, lack of harvesting and processing technologies, Enset diseases, lack of technical training, bad weather conditions like frost, low yield of the varieties, lack of credit access, lack of availability of adequate pesticides/herbicides, traditional harvesting and post-harvest handling activities and

animal attacks. At marketing/trading stage, low market price of the products, lack of market demand, price fluctuation, market access problem, poor road and transport facility, poor market information, product quality problem, poor actors' linkage are the major problems of Enset product marketing [13].

4.4. Opportunities of Enset Value Chains

Within relation of all aforementioned constraints, different studies have reported different opportunities in the value chain of Enset including increasing demand of Enset cultural foods for eating with raw meat, increasing demands among consumers to consume 'Kocho'/Enset bread/ with vegetables, increasing of other cereal product prices in market lead to substitute the Enset products and increasing of nutritional awareness of Enset products as medical values are prominent opportunities in Enset value chains [2]. Also, the native food security nature of Enset in Ethiopia is another opportunity. Because, Enset is a native food security crop that has the potential to contribute to food security and income generation for farmers. Furthermore, the Enset is deeply rooted in Ethiopian culture and tradition, and its value chain can be leveraged to promote cultural tourism and heritage preservation [19]. Also, suitable weather conditions, adaptability and drought resistance of the Enset, non-perishability of Enset products, social coordination or working together of the community, indigenous skills and knowledge of the farmers are opportunities in the value chain of Enset [13].

5. Conclusion

Based on the search results, Enset is a multipurpose and staple drought tolerant food crop grown mostly in southern, southwestern and central Oromia regions of Ethiopia. In production tendency Enset production is highly concentrated in the Sidama, Gurage, Gedeo, Kembata, Tembaro, Hadia, Dawuro, Gamo, Gofa, Amaro and Burji highlands dominantly. It is used for human and animal feedings and the 'amicho', 'kocho', and 'bulla' are common food items that obtained from Enset. Currently, Enset production has been increasing steadily over the past decade as demand for the crop has risen due to high population growth and urbanization. In the value chain of Enset input suppliers, producers, processors, collectors, wholesalers, retailers and consumers are common value chain actors who are obliged for adding values while Enset products are moved from initial stages to final stages. Besides, shortage of modern technologies, poor road infrastructure, weak government institutional support of farmers, weak extension services, lack of expertise that trained in Enset science, weak information flow among the value chain actors, weak network between producers and consumers, packaging problems, poor market policies, disease, lack of modern harvesting, processing and storage facilities, lack of market access and poor market facilities are

critical constraints in the value chain of Enset in Ethiopia. On other sides, diversification of Enset-based products, good climate condition for Enset production, drought-tolerant nature of Enset, leveraging traditional knowledge and increasing market demand among consumers are opportunities available in the Enset value chain. In summary, Enset is stable food crop that produced for home consumption and marketing and it also faces several constraints that limit productivity and value-addition potential. So, by addressing these constraints through research, technology, and infrastructure investments could unlock significant opportunities to expand Enset production and transform it into a more commercially viable crop.

6. Recommendations

Based on the search results, the researcher would like to forward the following recommendations regarding Enset production trends, value chain constraints, and opportunities in Ethiopia:

1. To strengthen the value chain performances of Enset the collaboration and coordination of the Enset value chain actors (input suppliers, Enset producers, local collectors, wholesalers, retailers, and consumers) should be promoted
2. To support and guide Enset producers in improving their market participation and linking Enset value chain actors with the market accesses the motivation of the extension agents should be encouraged
3. To reduce the high transaction costs associated with transporting activities the transportation infrastructures should be improved
4. To address the market constraints of Enset products the transportation infrastructures should be improved and market should be accessible to Enset producers
5. To overcome the financial constraints of the Enset value chain actors credit services should be accessible to the value chain actors
6. To improve the knowledge and skills of Enset producers in market-oriented production techniques the extension services and training programs should be enhanced
7. To expand the marketing opportunities of Enset products the nutritional value and cultural significances of Enset products should be promoted highly in urban areas
8. To overcome the processing constraints of Enset products the concerned government bodies should give emphasize to adapt modern technologies in Enset product processing

Abbreviations

CSA Central Statistics Agency

Author Contributions

Jilo Wolde Bulcha is the sole author. The author read and approved the final manuscript.

Conflicts of Interest

The authors declare no conflicts of interest.

References

- [1] Getahun Y. (2020) Enseteventricosum: A Multi-Purpose Crop against Hunger in Ethiopia. *The Scientific World Journal*, Vol. 2020.
- [2] Mistre Z. (2019) Enset Value Chain and Its Determinants: The Case of Rural Households in Abeshege Woreda, Gurage Zone, Ethiopia. MA Thesis, Department of Rural Livelihood and Development, Addis Ababa University.
- [3] Zerfu A., Gebre S., Berecha G., and Getahun K. (2018) Assessment of spatial distribution of enset plant diversity and enset bacteria wilt using Geo-statistical techniques in Yem special district, Southern Ethiopia. *Environmental Systems Research*, 7(1), 23.
- [4] Almaz N.(2001) Diversity and Conservation of Enset (*Enseteventricosum* Welw. Cheesman) and Its relation to Household Food and Livelihood Security in South-western Ethiopia. MA Thesis, Wageningen University.
- [5] Tadesse D. and Masayoshi S. (2016) Enset (*Enseteventricosum*) Production in Ethiopia: Its Nutritional and SocioCultural Values. *Asian Online Journal Publishing Group*, Vol. 3.
- [6] Sahle M., Yeshitela K., and Saito, O. (2018) Mapping the supply and demand of Enset crop to improve food security in Southern Ethiopia. *Agronomy for Sustainable Development*, 38(1), 7.
- [7] Brandt S., Spring A., Hiebsch C., McCabe J., Tabogie E., Diro M., Wolde-Michael G., Yntiso G., Shigeta M. and Tesfaye S. (1997) The tree against hunger. Enset-based agricultural systems in Ethiopia; American Association for the Advancement of Science.
- [8] Tenaye A, and Geta E (2008) Analysis of vulnerability and determinants of enset production in Wolaita, Southern Ethiopia. In *International Symposium on Underutilized Plants for Food Security, Nutrition, Income and Sustainable Development* 806: 663-668.
- [9] George P. (1988) Dilemma of Cost of Cultivation in Kerala". *Economic and Political Weekly*, Vol. 23. No. 39: 129- 132.
- [10] Kaplinsk R. and M. Morris (2001) A handbook of value chain analysis. Working paper prepared for the IDRC, Institute for Development Studies, Brighton, UK.
- [11] CSA (2011) Area and Production of Major Crops: Agricultural Sample Enumeration Survey part III. Addis Ababa, Ethiopia.

- [12] Yemane G. Egizabher (2020) Indigenous Knowledge and Socio-Economic Significance of Enset (*Ensete ventricosum* (Wendl.) Cheesman) Cultivation and Food Processing in Sidama, Southern Ethiopia. *A Journal of Plants, People and Applied Research. Ethno-botany Research and Applications*.
- [13] Destaw M. and Seyfu K. (2022) Value Chain Analysis of Bulla: The Case of Cheha and Mirab Azernet Districts: *East African Scholars Multidisciplinary Bulletin*, ISSN 2617-4413.
- [14] Henok T. (2018) Value Chain Analysis of Enset (*Ensete ventricosum*): The Case of Cheha District, Gurage Zone, Southern Ethiopia: Haramaya University, Haramaya.
- [15] Sheleme R., Abule M. and Mohammed A. (2020) Enset Product Market Chain Analysis: The case of Wonchi District, South West Shoa Zone, Oromia National Regional State, Ethiopia, *Agricultural Economics & Marketing Journal*, ISSN 2079-20427 Vol (1): 01-10.
- [16] Ashenafi H., Berhanu M. and Rijalu N. (2020) Enset (*Ensete ventricosum*) Value Chain in Dawuro Zone, Southern Ethiopia
- [17] Edom A. (2016) Enset Value Chain Analysis: The Case of Angecha Woreda In Kenbata Tembaro Zone, South Ethiopia
- [18] Lisanu D. (2020) Review on Enset (*Ensete ventricosum*) Value Chain in Ethiopia: *Journal of Resources Development and Management*, ISSN 2422-8397, Vol. 65.
- [19] Berhanu K. (2012) Market Access and Value Chain Analysis of Dairy Industry in Ethiopia: Haramaya University.