**ORIGINAL ARTICLE**

# ከውሃው በላኝ ወደ ውሃ አበላኝ /Kä Wuhaw Bälañ Wädä Wuha Abälañ (From Water Logged Me to Water Nourished Me*): A Historical Analysis of Rice Production on enhancing Livelihood in Fogera Woreda, 1970s to 2017

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## *Abstract*

*This article explores the introduction of rice production in Fogera woreda mainly associated with the government initiative of ensuring food security for households at the beginning of the 1970s. The woreda has well-suited agro-ecology for the production of rice. Hence, this study attempts to investigate examine and assess the contribution of rice production to the income and food security of rural households in Fogera Woreda, South Gondar Zone. To achieve the objective, the researcher used a qualitative research method. The data was collected from primary and secondary sources. Primary sources were collected through key informant interviews and archival sources while secondary sources were obtained from relevant literature such as books, journals, articles, study reports, and theses. The study result shows that farmers in Fogera plain have benefited from rice production. The implication of rice production on the socio-economic life of society was seen since its introduction. Hence, rice production in Fogera is one of the most essential achievements of the society which changes the life of peasants incredibly well.*

**Keywords:** *Crop, Fogera, Production, Rice, Waterlogged*

## Introduction
## Background

Rice is produced globally and is the primary staple crop in several countries of the world and its farming was back 10,000 years old. Rice has fed more people for a longer and extended time than any other crop. It is being produced in a wide range of locations and under a variety of climatic conditions on more than 144 million farms worldwide. Nowadays, China, India, Indonesia, Bangladesh, Vietnam, Thailand, Burma, Philippines, Japan, and Brazil are the top ten rice-producing countries respectively (Mesfin and Zemedu, 2016, p.3). In Africa, rice is becoming a staple food and there has been increasing demand in Africa in the past three decades. Despite the huge potential for rice

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production in Africa, productivity is very low mainly because of insufficient investment in improved technologies and irrigation schemes (Abebaw, 2020, P. 35). More than 85% of the Ethiopian population is residing in the rural area and agriculture is the largest sector in their economy, accounting for over 50% of Gross Domestic Product (GDP) and employing over 85% of the labor force. The country's agricultural sector is characterized by small-scale production and 90-95% of agricultural output comes from small-scale subsistence households owning land (Mulat, et al, 2006, p.13). Rice propagation research started with the adaptive experiment of introduced varieties, which resulted in the release of some varieties (Alemu and Assefa 2016, p. 2).

Even though the country has huge potential for rice crop, its production, productivity, and expansion has been challenged by a lack of improved varieties, not compulsory crop management practices, inappropriate pre and post-harvest management, unenhanced technologies, and awareness of its utilization (Tamirat, and Jember, 2017, p. 646). Following this rice expansion and lack of improved technologies, the demand for improved rice technologies is increasing from time to time. The government of Ethiopia gave special attention to the promotion of rice production for food sufficient since its introduction. Rice is known as the "millennium crop" that contributes to ensuring food security in a country (Dawit and Kiyoshi, 2003, p.22; Informant: Merätu and Awäqä Agär). Rice in Ethiopia has enormous potential to supply food security and even for generating foreign currency from its export. The introduction and expansion of rice production in suitable agroecologies could be an option to achieve food security and export (Dawit and Kiyoshi, 2003, p.22).

Even though *Fogera woreda* is one of the main rice-producing areas, it gave little attention to scholarly study. Even the existence of a few pieces of rice research has been conducted by scholars outside of the discipline of history. Hence, this article mainly dealt with the historical analysis and the contribution of rice production to the livelihood of the household of the woreda. In this article, the researcher investigated the rice production and development of rural capitalism in *Fogera* from the 1970s to 2017. The 1970s was the period that rice was introduced into the study area, whereas in 2017 more than 119 processors were operating with a legal license in the *Fogera* Plain.

## The Expansion of Rice Production in *Fogera* Woreda

Fogera Wereda is one of the 169 Woredas' of the Amhara National Regional State and is found in South Gondar Zone. It is situated at 110 58' N latitude and 370 41' E longitudes. The woreda is bordered by Libo Kemkem woreda in the North, Dera woreda in the South, Lake Tana in the West, and Farta woreda in the East. Woreda is the capital of the woreda and is located 625 km northwest of Addis Ababa and 55 km from the regional capital, Bahir Dar. Woreda and Alember are the two major towns in Woreda. The Woreda is divided into 26 rural Kebeles and 5 urban Kebeles (Chantal, et al, 2012, p.11).

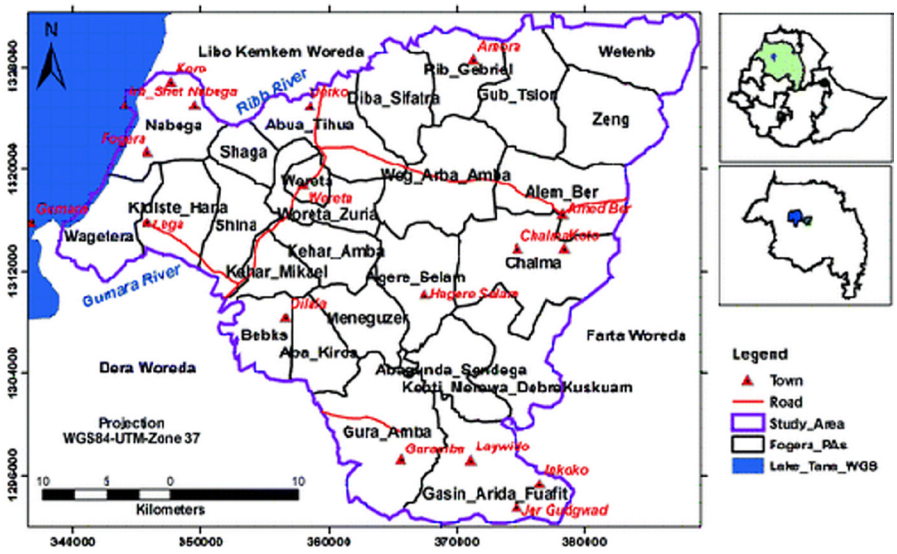


Figure.1. Map of *Fogera Woreda* with Its Major Rivers and Kebeles
Source: *Fogera woreda* Communication Office 2012 E.C

*Fogera* mainly consists of a flat, open plain across which the two main rivers Gumara and *Rib* flow into Lake Tana. The proverb stated "**ለአላዋቂው ፎገራ ዱሩ ነዉ**" literary meaning, "Fogera is a forest for those who do not know it before". This means as the plain is vast and level; it is difficult to find particular places for strangers. However, nowadays the peasants planted and covered the plain with eucalyptus trees (Yemisrach, 2016, p.28). *Fogera* Plain lies on the east side of Lake Tana and is known for its floods. During and after the rainy season, the *Rib* River approaches the level of Lake Tana, and water overflows its banks and floods the surrounding area. The same is true for Gumara on the southwards though it causes less flooding than Rib (Cheesman, 1935, p. 499).

The evidence has indicated that cultivation of rice in Ethiopia was started first at Fogera and Gambella Plains in the early 1970s. It is believed that a Dutch man introduced rice first in 1973 from Gambella to the Fogera Plain in the Amhara Region (Bekur, 1997, p, 3). Hufnagel stated in his book, in the sixteenth century, the Portuguese brought rice with them for the cultivation of this grain crop in Ethiopia. However, there is no clear evidence that shows why rice was not adopted and cultivated as soon as its introduction (Hufnagel, 1961, p. 302). Belayneh and Jember indicated in their article review, rice cultivation in Ethiopia is believed to start around 1957 in Metahara, along with the Awash River (Tamirat, and Jember, 2017, p. 648).

However, Sewunet stated that the adaptation and screening experiments of rice production had been initiated and conducted at Fogera, Gambella, Melkaworer, Debrezeit, and Arbaminch from 1968 to1988 by different governmental and non-governmental organizations (Sewunet, 2005, pp. 3-4). On the other hand, Gashaw stated that rice cultivation had probably been started in Ethiopia when the wild rice was observed in the swampy and waterlogged areas of Fogera and Gambella plains locally known as Zurha (Gashaw, 1989, p.32; Informants: Merätu Ašagere', Bayä Abäbä and Telahun

Mäkuanenet). But this statement is not supported by much critical evidence. Because rice like grass i.e. Zurha is still found in swampy and waterlogged areas of Fogera but differ from rice crop. The Ethiopian government recognized that rice can significantly contribute to improving food security and poverty reduction. Nowadays, rice cultivation is concentrated only in a few areas such as the West central highlands of the Amhara Region (Fogera, Gondar Zuria, Dembia, Takusa, and Achefer); North West lowland areas of Amhara and Benshangul Regions (Jawi, Pawi, Metema, and Dangur); Gambella regional state (Abobo and Etang Woredas) South and South West Lowlands of Southern Nations Nationalities and People Regional State (Beralee, Weyito, Omorate, Gura Ferda, and Menit); Somali Region (Gode); South-Western Highlands of Oromia Region (Illubabur, East and West Wellega and Jimma Zones (Tamirat, and Jember, 2017, p.648).

Before the introduction of rice into the area, the land use was dominated by extensive grazing of the indigenous Fogera cattle breed, which has a large frame, survives with waterlogged conditions, and is one of the best native milk cows in the area (Yemisrach, 2016, p.25). The area used to be largely characterized by swamps in the rainy season for about a quarter of the year, after which it was devoted almost exclusively to grazing. In the rainy season, the Fogera plain is heavily flooded and farmers marched their cattle to highland areas of the woreda and the neighboring highlands woredas like Farta, Dera, and Libo Kemkem. During the dry season, the water retreats, and the flood area was also used for seasonal grazing and retreat cultivation the soil seems relatively deep and fertile (Emebiet, 2018, p.16). Yemisrach confirmed that the introduction of rice becomes the main cause for the fast decline of grazing lands. As a result of socioeconomic life of the society in Fogera plain gradually changed from animal husbandry to mixed farming. This situation in line with the decline of their breed and the introduction of rice production plays a crucial role in such transformation (Yemisrach, 2016, p.57).

Fogera Woreda is suitable for the production of different cereals, oil seeds, fruits, grains, and livestock production. Millet, Niger seed, fish, cattle, sheep, teff (Eragrostis teff), maize (Zea mays), vegetables, cattle, goats, barely, beans, potato, sheep, and cattle are well domesticated. The dominant crops teff, maize, millet, vetch, chickpea, and pulses are relatively productive and covered a significant portion of arable land. But after the introduction of rice, the amount and intensity of production for teff and other cereal crops were changed to the production of commercial crops like rice, onion, cabbage, and tomato. Recently, rice, which is multi-purposive, replaced teff and other less profitable cereals in the lowland portion of the Woreda (Yemisrach, 2016, p.70; Desta, et al, 2019, p.4; Informants: Telahun Mäkuanenet, Mänegeset Bälay, and Merätu).

The first rice cultivation trial program was started in late 1974 by the Ethiopian Institute of Agricultural Research (EIAR) in the area in the early period of the Military government of the Derg (Kebebew, 2011, p.32). This activity was conducted for three years, up to 1977 in the Jigna Kebeles a locality named Damba. The farmers' cooperative established was in 1978 and become a legal entity in the 1980s with members of 500 households. In July 1984, a team of North Koreans composed of nine experts came to the area with a project entitled "Ethio-Jigna Development Project". Rice was the first trial by planting. According to the reported written by Provisional Military Government of Socialist Ethiopia Ministry of Agriculture Gondar Agricultural Office mentioned that "**በዚህ** 1972 **ዓ.ም በወረዳው በተደረገው ሙከራ በሄክታር ከ**80-90 **ኩንታል ሩዝ የተመረተ ስለሆነ ይህ የሩዝ ማምረት ተግባር በሰፊው ቦታ ተሰጥቶት ተጠናክሮ እንዲቀጥል፡፡**"

It literary means that, in 1972 E.C on the testing of rice production, the woreda had produced 80-90 quintals of rice per hectare, and this rice production testing should be

strictly continued on the large amounts by including additional areas (North Gondar Zone Administration Archive Center (NGZAAC) File No. ነክ/67/7/ጠ Senie, 27, 1972 E.C). The letter indicated that due to the successful test of rice production the government deliberated to produce rice in the study area.

Figure. 2. Office where Koreans Trial Rice Genotypes
Source: Japan International Cooperation Agency (jica) retrieved on July 2020

The North Koreans started to do their research on rice and horticultural crops. Concerning rice, the Koreans trial several rice genotypes including some brought from North Korea. After the trial of the collected genotypes, one variety, which is later named X-Jigna brought from North Korea found to be appropriate to the area (Ibid).

In the early 1980s, the pilot production was promising when Jigna (Dera woreda) and Shaga (Fogera woreda) farmer cooperatives (eye-opener and risk-taker Peasant Associations) started large-scale production of rice with the technical support of North Korean experts. These experts were who were placed in the Fogera Plain to support two established farmers' cooperatives and observed the existence of wild rice growing in the area, which served as a sign that the local area would be appropriate for rice development (NGZAAC; File No. 681/8/73, 1973 E.C).

Figure.3. One of the North Korean Expert, Mr. Li with Fogera's Farmers in 1987
Source: Future-agricultures.org

It had been promoted in the woreda by the Woreda Agricultural and Rural Development Office (WARDO) in collaboration with the International Institute of Tropical Agriculture (IITA) up to 1988. The Jigna and Shaga farmers' producers' cooperatives started large-scale production of rice with the technical support of North Korean agricultural experts. The extension program of rice was very successful. However, due to the collapse of farmers' producer's cooperatives, the Koreans left in 1990. Due to this reason, the evacuation of rice producers from the resettlement areas around the early 1990s, the rice research, extension, and production activities were weakened. However, almost all the farmers who worked with the Koreans continued with their rice farming individually and served as a source of seed to other farmers in Fogera (Astewel, 2010, p.2). But, in the later 1993, the Ministry of Agriculture proposed a new rice research and extension program, and Fogera plain was selected for its implementation. The program was handled by the Bureau of Agriculture of the Amhara National Regional State. The Bureau was conducting the research activity using the introduced rice varieties from the International Institute of Tropical Agriculture (Amhara Regional Agricultural Research Institute (ARARI), 2016, p.47).
Currently, rice seed varieties such as NERICA-4, NERICA-3, SUPPERICA, TANA-EDGET, GUMARA, and X-Jigna are found in Fogera woreda (Astewel, 2010, p.3). A Rice variety demonstration was also conducted in different potential areas of the region using the variety called X-Jigna. In 1994, the development activity was reinitiated by South Gondar Zone and Fogera woreda agricultural office based on new strategies and approaches by proposing a rice testing and development program. The program encouraged volunteer farmers to participate so that a large number of households were involved in the production of rice (Tesfaye, 2009, p.3).

After the phase-out of these projects, rice production in Fogera Plain has been continuously and enormously expanded and now becomes the most economical crop in the area. Following the introduction of rice, the Fogera Plain has been transformed from year-after-year grain shortage and food insecurity to surplus grain-producing crops. Currently, in Woreda, there are 21 Peasant Associations and 3 sub- Peasant Associations which are currently major rice-producing areas (Legesse, 2007, p.69). The information from the woreda Agricultural Office indicated that there is an increasing trend of expansion of rice cultivation from 1993 to 2017 in terms of the number of Peasant Associations (PAs), production trend, and productivity in the woreda. This clearly shows that rice cultivation is increasing from year to year. From 1993-2005, almost all kebeles of the Fogera plain become producers of rice. In the study area, rice also increased from 2 PAs to 21 PAs and from 20 quintals to 48 quintals per hectare (Fogera Woreda Office of Agriculture and Rural Development, 2017, p.6).

Rice production was a major crop in the flooded kebeles of the Woreda such as Kidest Hana, Kokit, Nabega, Shaga, Shina, and Wagetera that bordering Lake Tana because of the overflow of the lake. Before the introduction and expansion of rice into the area all the above kebeles were not cultivated and covered by flood in the rainy season. But nowadays, such flooded areas have become major rice-producing areas. Rib and Gumara are the two major rivers that recharge Lake Tana. Both rivers start from Guna Mountain which is 4120 meters above sea level and cross many of the kebeles before entering Lake Tana. These two rivers have great economic importance to the woreda because they are used for irrigating vegetables during the dry season. Due to the introduction and expansion of upland rice varieties to non-rice growing areas in the uplands since 2008

and increased rice prices, rice has extensively expanded in different kebeles of woreda. Among these kebeles, Hagere Selam, Meneguzer, Woji, Alember Zuria, Zeng, Woreta Zuria, Kuhar Mikael, Tihua Zakena, Addis Betechristian, Wotemb, Rib, Diba, Chalma, Guramba, and Arida are the major one (Tilahun, et al, 2012, pp.5-6; Fäneta Takälä, Aläme'näh Amebäreber, Mänegeset, and Merätu). Upland rice is a productive crop per unit area relative to other food crops. Evidence indicated that due to its high yield and other peculiar nature, upland rice is becoming a staple food for most Fogera residents. It can be used to prepare different types of dishes and drinks. It can be easily cooked so that it saves labor, fuel, and time while cooking. Farmers in the uplands started growing X-Jigna when rains start early enough in the season as this crop requires staying underwater for an extended period for good production (Emebiet, 2018, p.73).

Fogera plain is characterized by swamps in the rainy season for about three consecutive months (June, July, and August). After which it is devoted almost exclusively to grazing by the indigenous Fogera cattle breed, which copes with waterlogged conditions, and is one of the best local breeds for both milk and meat. Water flooding was the most intermittent problem of Fogera plain farmers which cause death, injuries, property damage, and contamination of drinking water during the main cropping season. The residents were forced to migrate to other highland areas in search of food and other job opportunities because farmers and their families in the flood areas/swampy environment are not capable to produce other crops and also they are inactive in the rainy season due to over flooding (Amare, et al, 2019, p.1). There had been many destructive floods in Fogera Woreda, including a very severe flood in 1970, 1987, and 1990. The 1970 flood set a new record for a flooded area, while the 1990 flood was unprecedented with its long duration and damage (Dagnachew and Wubet, 2011, P.337).

The main negative impact of the flooding of the area was on the crops and houses of the residents. The informants said, "**ለረጅም ጊዜ የሚቆየው የጎርፍ መጥለቅለቅ ሁሉንም ሰብሎቻችን ያጠፋቸዋል ቤታችንም ሊያፈርሰው ይችላል**", it is to mean that "Throughout flooding damaged all the crops and majority of our houses may collapse due to excessive amount of floods" (Emebiet, 2018, p.75). Due to the water flooding, the residents of Fogära plain had proverb **ውሃው በላኝ** /wuhaw Belañ/ meaning "the waterlogged me". This stated that in the rainy season, all the plains, houses of the residents, and crops of Fogära plain are enclosed by the flood. Those people who lived in the plain were forced to sleep and cooked their food on the long bed. According to the evidence nowadays the production of rice minimized the flooding of the area (Informants: Bayä, Telahun, Fäneta, Aläménäh, Mänegeset, and Merätu).

Figure. 4. Fogera woreda plain Before (A) and After (B) Rice production
Source: Fogera woreda Communication Office 2012 E.C

Nowadays, the introduction of rice has made some of these areas productive and created a very significant change in the livelihood of farmers. Because of that the crop of rice could survive and needed swampy/water logging areas by nature. Due to this reason, the Farmers had become food self-sufficient and lived a better life. Because of this, the residents of Fogära plain say that "**ውሃ አበላኝ** /Wuha Abälañ/ meaning water nourish me". Still, the Fogera peasants use this traditional saying to express their concern, disconsolateness, and harsh conditions. The earlier proverb of the residents changed into "**ከውሃው በላኝ ወደ ውሃ አበላኝ** / Kä Wuha Bälañ Wädä Wuha Abälañ/" meaning "From water-logged me to water nourish me". According to the description of the informants, Waganäš Mulua'läm, Bayä, Mänegeset, Täka, and Sätäñe Bayä, after the introduction of rice, such flooding areas became suitable for rice production and the farmers are more beneficial than before.

The Rice producers earn income by selling paddy alone or polished (milled) rice. It has two by-products. These are straw yield and husk yield. Straw yield is used for building houses and husk yield (cover rice) is also used for livestock feeding and wadding purpose for farmers. Husk yield is also used for making food. Usually, farmers do not use the husk yield. They may leave for millers during the milling of their paddy. But straw yield is also considered to determine the gross income of farmers (Astewel, 2010, p.65).

A large amount of grains is sold and purchased in the months of production season (December to March,) which is the month immediately after harvest. With increasing income from rice, farmers have started to invest in supplementary irrigation, which has also created the opportunity for the production of other crops to further increase household income. Farmers generally use irrigation to supplement rain-fed rice production and to produce onion, tomato, and maize along Gumara and Rib rivers. However, with the shift in land allocation to rice, there has been a considerable decline in the production of other traditional crops (te□, sorghum, Niger seed, and lentils) due to the relatively high economic returns that rice provides per unit area versus other crops (Emebiet, 2018, p. 27). But, te□ production still exists in the pockets areas, given its traditional importance and the relatively high price it fetches in local markets. The farmers who produced rice that to be more commercially oriented and those who have expanded their business activities. In addition to rice production, the peasants actively participated rice processing, rural transport, trading, rental housing in urban areas, etc (Emebiet, 2018, p. 17). Rice accounted for 48.26% of the total cultivated land and 48.85% of the total production of the woreda. The farmers benefited from the production of rice on water-logged land where other cereals could not be grown (Astewel, 2010, p.5).

Due to the surplus production of rice crops, the woreda founded a Center known as Rice Research and Training Center (FRRTC) which engaged in conducting research and providing training mainly on rice on August 7, 2013, under EIAR. Furthermore, the Center gives training on ranch mechanization and domestic animals that can be incorporated with rice farming (http://www.eiar.gov.et/frrtc, retrieved on July 2021; Informants: Merätu, Waganäš, and Awäqä).

## Rice as a Source of Income and Cash crop in Fogera Woreda

Rice production changed the life of Fogära peasants who were in bad living conditions due to poverty. Before its introduction, there were a small number of peasants with a

good standard of living. But Most of the people were poor and there was a big difference between the rich and the poor. During the period of animal husbandry, some pastoralists had hundreds of cattle and some people had no one. Nowadays, Because of the high amount of rice production, most of the people who were living in small huts made of wood and grass had at least one or two more corrugated iron houses for the family and their animals. The extra rice production other than their food consumption changed their standard of living (Yemisrach, 2016, p.57). There are many actors in rice marketing in Fogera and participating in different levels and types of activities (Astewel, 2010, p.56). Rice production that began recently changed the lives of rural farmers in the Fogera plain. With the gradual shift from rice grown initially for food security to rice as a cash crop, several agrarian changes have occurred in several areas. Rice is considered "the white gold" for Fogera which indicated that rice production plays a great role in the transformation of peasants' life and in invigorating the development of Wereta (Tilahun, et al, 2020, p.1). Rice has good market demand and its price is much higher than the major local crops. It is the source of income to pay taxes, credit, buy clothes and purchase some inputs and other routine expenses (Chantal et al, 2012, p.22). The household income is determined by the source of income. Rice has good market demand and become the major source of cash crops for rice producer households and rice traders. The income from crop output was computed by valuing the total output using the average market price (Emebiet, 2018, p.49).

It is difficult to get real data on income, particularly in communities whose income source is highly diverse and inconsistent. Even the household heads themselves may not exactly know what they gain in a month. Nevertheless, an attempt was made to capture the approximate level of income earned by households. The price of the market at the beginning of (1993/94) was between 40 and 60 Birr per quintal. But later, the number of products and price of rice increased (Berhanu and Hoekstra, 2008, p.8). For instance, in 2006, the price of rice at harvest, after harvest, and in the rainy season, farmers sells one quintal of unpolished rice grain for Birr 156, 162, and 177 respectively. Many of the farmers sell their rice grain to rice traders (whole sellers and intermediaries) and rice machine owners at some reduced cost. However, some farmers normally do not sell their rice at one time, because of their marketing prediction that its price will increase during the rainy season. The common storage facilities used by farmers are **ጎታ**/Gota/, **ጎተራ**/Gotera/, and sacks. Gota is local storage made from mud, plastered and insulted by cow dung, which normally keeps the internal temperature without being affected by the ambient environment, mostly found inside the house whereas Gotera is storage made from thin wood or bamboo with a thatched roof and plastered by cow dung mostly found around the homestead the same as Gota but made from. Both Gota and Gotera are the best ones in terms of maintaining the moisture content, protecting from fire hazards, theft and also to protect from pests but sack is the easiest to easily move from one place to another especially if the grain stays till the flooding time (Abdella, 2017, p.30).

According to the informants, rice for Fogera farmers is like an Automatic Teller Machine (ATM) card. Because they draw out of the store in small quantities when there is a need for cash. Before the introduction of rice into the area, farmers did not have much money. But nowadays, much of farmers had opened Bank accounts and saving their money. Even some of the rice producer households participate in off-farming activities including trading, agro-processing, and transport services. Many farmers have also purchased three-wheel vehicles locally known as 'Bajaj', agricultural product transport vehicles locally called 'Isuzu', public transport vehicles, mainly minibusses, and the construction of houses as rental properties in nearby urban centers (Informants Bayä, Aläménäh, Mänegeset, and Merätu). Yemisrach confirmed that a lot of the rice producer households' supply

rice at Wereta town, which is found at a far distance from many of the Kebeles. Peasants used traditional means of transportation to provide their products to the market. Pak animals and human power were means of transportation for producers. Small traders and assemblers of paddy rice from the rural market used bullock carts. But in the recent past, there was some development in transportation aspects, and peasants have begun to use a small vehicle called Bajaj for transportation inaccessible areas. Another development is also transportation of polished rice from merchant stores or from wholesalers or millers to other market areas (Yemisrach, 2016, p.57).

## Rice as Food Consumption

Before the introduction of rice, the farmers of Fogera plain received different food and other material aids from governmental and non-governmental organizations. For instance, a letter written by the Provisional Military Government of Socialist Ethiopia Relief and Rehabilitation Commission indicated that the woreda received 1,061,200 birr and different aids due to the flooding of the area in 1969 E.C (NGZAAC, File No., 24/6/14/78, 1969 E.C). According to the description of Teshome, rice-producer households have not been involved in food aid currently. The majority of rice producer households in the plain have fulfilled their family consumptions and become self-sufficient. From this, it can be said that rice has contributed more to the capacity of coverage of annual household food requirements and to extend the length of food secure months the households (Teshome, 2009, p.14.).

Informants Bayä, Ṫelahun, Fäneta, Aläménäh, Mänegeset, and Merätu stated that “thanks to rice, we do not need aid, we do not need a blanket, and we do not need maize flour”. This response indicates that after the introduction of rice, the people of Fogera plain do not need food aid. This implies that rice solved the critical and bottleneck problem of the area. Rice production that began recently changed the lives of rural farmers in the Fogera plain. It also confirmed that rice “the White Gold” for Fogera farmers, saves thousands of people from hunger. Thus, this crop is the most important concerning food security in the woreda. In general, rice-producer households have a much better capacity of coverage than non-rice producers.

Rice fits easily into the lifestyles of the people especially to prepare different nutritional/ dishes like injera (thin pancakes made from fermented flour) which is the common food of Ethiopians. In most cases, rice is eaten in the form of injera lonely or combination with other food crops like sorghum and teff (Ministry of Agriculture and Rural Development (MoARD), 2009, p.1). In the beginning, some people believed that it is not good for their health. They say that it makes them slim, gray, and dry. For them consuming rice makes a person thin and weak. People with hemorrhoids do not eat rice, because they believe that eating rice may aggravate the problem. Nevertheless, nowadays, rice has good taste, color, and palatability when mixed with other crops and it is easy to prepare and saves rice powder (because it needs more water during dough preparation). The color white rice injera has white color and because of this, they call it locally ‘ወተት የመሰለ’ /Wätät Yämäsälä/ means milk-like. It is cool, soft, elastic, and palatable. The development of mold on the surface of rice injera is not a common problem as compared to other types of injera made from (teff and millet). Furthermore, Fogära women appreciate the quality of rice to mix with other crops and its suitability to prepare different types of local dishes and drinks. Due to the above excellent value, they call it locally “ሁሉን እሽ” /Hulun Eše/ means “versatile” because it can be used to prepare all types of local foods. Moreover, they have a high regard for its excellence to present to respected guests. To express this feature, they commonly say in Amharic “እንግዳ ፊት ቢቀርብ የማያሳፍር እና የሚያኮራ” it is mean that “it does

not dishonor if it is presented to guests and it gives you pride and dignity" (Informants: Wubaläm Amebäreber and Zänäb Molla).

Rice can be also used to prepare a variety of traditional dishes like Dabo (bread), Genfo (Porridge), Kinche, (boiled split rice mixed with either oil or butter), Dabokolo (small round dough ball roasted), and Shorba (Soup). Great progress has been made by Universities to promote local rice by preparing two times meals per week for their students. Many of the universities used local rice in their menu to feed their students. It was also used for preparing local beverages like tella and areki, and such strong drinks could bring a headache. Furthermore, rice has some inherent characteristics which make it attractive that can available all year round because of its long shelf life, making it preferable to other crops for food security (Tilahun, et al, 2012, p.6; Tamirat, and Jember, 2017, p.655).


Figure. 5. Some Variety of traditional Rice dishes
Source: Fogera woreda Tourism Office 2012 E.C

**Rice as means of Job Opportunity**

Rice is a very labor-intensive crop, which requires the engagement of all household members. Rice production has brought a significant change in the livelihood of farmers and created job opportunities for many laborers in different areas of the woreda. Demand for unskilled rural labor for rice production has grown considerably and younger landless family members have found good opportunities in the rural labor market as daily or contract laborers. Labor demand during peak periods (e.g. weeding, harvesting) is so high that daily laborers are attracted to the area (MoARD, 2009, p.20; Informants: Eyayu, Bayä, Mänegeset, Täka, and Sätäñe Bayä).

In the area, June for plowing and sowing, July to September for weeding, and October to January for harvesting and threshing are the busiest periods. Most of the laborers are migrants from high lands of Farta and other Woredas of the South Gondar Zone. Before the introduction of rice, one daily labor was hired from 20-30 ETB per day plus the accommodation of lunch and local beer (tela). Due to this reason, some laborers of the woreda intended to go to Humera for weeding in the commercial sesame farms. Nowadays, one daily laborer is employed from 150-200 Birr per day plus the accommodation of lunch and local beverages. This indicated that rice created job opportunities for daily workers not only for the surrounding areas of wage laborers but also for neighboring Woredas of landless and poor daily laborers. Rice production employs people and is essential to

the economic growth of urban and rural areas in Fogera (Informants: Bayä, Ṫelahun, Fäneta, Aläménäh, Mänegeset, and Merätu). Private business people who have millers, mule-pulled carts (transporters), urban assemblers and wholesalers, etc. have also been involved in the woreda rice value chain (Ibid; Tilahun, et al, 2012, p.19).

After its introduction and production, rice plays a crucial role in infrastructural development in the woreda like Health Centers, construction of schools, road facilities, technological development, and others. In Fogera plain, the households' health situation was improved and farmers can pay for the service of health. In the plain, the saving conditions of the household were also improved in the form of grain and money. The inhabitants of Fogera plain marital conditions were also improved. This is because before the introduction of rice in the plain the hilly side households were not volunteers to marry the plain household girls and boys. This is also due to the poorness of the plain households before the introduction of rice. But nowadays due to the introduction of rice in the plain, this cultural problem of marital conditions were improved (Informants: Bayä, Mänegeset, Täka, and Sätäñe Bayä). The expansion of rural roads helps farmers can sell agricultural produce in nearby urban centers, providing an opportunity to secure better prices compared to spot sales to local brokers and village markets. These increased rural-urban linkages have led to the growth of new transport services to move people and agricultural produce to and from nearby towns, as well as the growth of restaurants, hotels, and different supermarkets (Tilahun et al, 2012, p.19).

Before the introduction of rice into the Fogera Plain, farmers used traditional processing methods including hand tools and stone grain mills. Although not specifically designed for rice processing, grain-milling machines were gradually introduced by private operators moving into the area to process the paddy rice. A letter written by the Provisional Military Government of Ethiopia, Gondär Kefelä Hagär Yä Däberä Tabore Awuraja Administrative ordered the Gondär Kefelä Hagär's Commodity Campaign and plan administrative office to buy rice grain mill machine in 1980 to Fogera woreda (NGZAAC; File No. 3819/1582/73, 1973 E.C). Later in 1974 E.C, the Debre Tabor Awraja Administrative Office buy the first rice processing machine by 19, 978.68 Birr from Japan (NGZAAC, File No., ምወ41/11/2, 1973 E.C).

However, in 1987, the Ministry of Agriculture introduced an appropriate rice processing machine through a producers' cooperative, which was the first attempt to demonstrate to local rice producers how paddy rice can be de-husked and milled efficiently. Technology development and transfer are crucial to achieving food security, economic stability, and poverty reduction in the woreda. Nowadays, some rice producer farmers start plowing by using tractors. The beginning of innovative agricultural expertise plays an essential role in agricultural improvement by bringing positive changes in the entire financial system. Some technologies have been imported and adapted to local conditions to bring food security to rice technologies. In late 2017, 119 processors were operating with a legal license in the Fogera Plain. Processors play a dual role by providing processing services to farmers and also acting as processed rice wholesalers. However, farmers report considerable rice breakage by processors in the course of de-husking, which reduces quality and marketability. Sometimes local rice has off perfume which to some is likable, but it is offensive to those who buy foreign rice (Ibid, p.19; MoARD, 2009, p.17).

## Conclusion

In this study, an attempt has been made to present and analyze the production of rice in Ethiopia. The evidence has indicated that cultivation of rice in Ethiopia was started first at Fogera and Gambella Plains in the early 1970s. The Ethiopian government recognized that rice can significantly contribute to advancing food sufficient and poverty reduction. As the article rigorously stated above Fogera is one of the highest rice producers of woreda from the Amhara region. Even though the rice was introduced in Fogera in the early 1970s with the support of the North Korean Project, it was first cultivated by farmers in the late 1990s.

The article shows that Flooding was the most intermittent problem of Fogera plain farmers which cause death, injuries, property damage, and contamination of drinking water during the main cropping seasons of the months (June, July, and August). Nowadays, such problems were minimized, and because of that the crop rice can survive such flooding and create a very significant change in the livelihood of farmers. The study revealed that fanners in Fogera plain are benefiting from rice production. The annual production and income of most farmers are rising. The increment in income has changed the life of households in many ways. Rice is serving farmers as a cash crop and an important source of employment and income. The farmers have produced an average of 45 quintals of rice over a Single harvesting year per hectare. Rice has good market demand in Fogera plain and its price is much higher than the major local crops. It is the source of income to pay taxes, and credit, buy clothes, purchase some inputs, and for other routine expenses. Rice was" the white gold" for Fogera farmers, rescuing thousands of people from hunger and helping lessen poverty, and to sustain livelihoods.

## References

**Unpublished Sources**
**I. Minute, reports, and Documents**

North Gondar Zone Administration Archive Center (NGZAAC). (1972 E.C). File No., ነክ/67/7/ጠ, Letter Written by "Heberätäsäbawit IteyoṖeya Gizéwi Wätadärawi Mänegeset Bä Gondär Kefelä Hagär Yä Geberena Minisetär Tätäri Ṫäfät Bét, Lä Gondär Ereša Lemat Derejet.

NGZAAC. (1973 E.C). File No. 681/8/73, Letter Written by "Heberätäsäbawit IteyoṖeya Gizéwi Wätadärawi Mänegeset Bä Gondär Kefelä Hagär Yä Geberena Minisetär Tätäri Ṫäfät Bét, "Lä Kefelä Hagäru Yämeret Edegät Zämäča Ṫäfät Bét.

NGZAAC. (1969 E.C). File number, በ24/6/14/78, Letter Written by "Heberätäsäbawit IteyoṖeya Gizéwi Wätadärawi Mänegeset Yäredata Masetäbabäreya ena Mäquaquamiya Komišen", "Heberätäsäbawit IteyoṖeya Gizéwi Wätadärawi Mänegeset Yäreša ena Hezeb Masefär Minisetär Yä Enesasat Ṭéna Ṭebäqa Wana kefel".

NGZAAC. (1973 E.C). File No. 3819/1582/73, Letter Written by "Heberätäsäbawit IteyoṖeya Gizéwi Wätadärawi Mänegeset Gondär Kefelä Hagär Yä Däberä Tabor Awuraja Asetädadär, "Lä Kefelä Hagäru Yämeret Zämäča ena plan Memria Tsifet biet,

NGZAAC. (1973 E.C). File Number, መወ41/11/2, Letter Written by "Heberetesebawit Ethiopia Giziawi Wätadärawi Mänegeset Yäwuha Habet Lemat Baläseleṭan, "Yä Däberä Tabor Awuraja Asetädadär Ṫäfät Bét.

Fogera Woreda Office of Agriculture and Rural Development. (2010 E.C). Yä Fogära wäräda Gäťta.

## II. Thesis

Abdella Muhammed. (2017). "*Studies on the Assessment of Postharvest Losses of Rice (Oryza sativa) in Fogera District of Amhara Region, Ethiopia*", MSc Thesis, University of Gondar.

Astewel Takele. (2010). "*Analysis of Rice Profitability and Marketing Chain: The Case of Fogera Woreda, South Gondar Zone, Amhara National Regional State, Ethiopia*", MSc Thesis.

Emebiet Birhanu. (2018). "*Environmental History of Fogera Woreda from 1941-1991*", MA Thesis University of Gondar.

Legesse Gelaw. (2007). "*Rice Cultivation and Rular Household Food Security in Fogera Woreda Plan, South Gondar Zone, Amhara National Regional State of Ethiopia*", MA Thesis, Addis Ababa University (AAU).

Sewunet Ashebir. (2005). "*Effects of Nitrogen and Seed Rates on Grain Yield, Yield*

*Components and Nitrogen Uptake of Rainfed Rice (Oryza sativa L.) in Fogera, South Gondar*", M.Sc. Thesis, Haramaya University, Ethiopia.

Tesfaye Alemu. (2009). "*Effectiveness of Upland Rice Farmer-to-Farmer Seed Production-Exchange System: The Case of Fogera Woreda, South Gondar, Ethiopia*", MSc Thesis, Haramaya University.

Teshome Derso. (2009). "*On Evaluation of Urea Treated Rice Straw and Rice Brain Supplementation on Feed Intake, Milk Yield, and Composition of Fogâra Cows, North Western Ethiopia*," MA Thesis, Department of Animal Science, Bahir Dar University.

Yemisrach Kassie. (2016). "*A History of Animal Husbandry and Population Settlement in Fogära Wäräda, 1974- 2006*", MA Thesis, Bahir Dar University.

## Published Sources

### I. Papers and Journals

Abebaw Dessie. (2020). "Rice Breeding Achievements, Potential, and Challenges in Ethiopia", *International Journal of Research Studies in Agricultural Sciences,* 6(1).

Alemu Dabi and Assefa Gidesa. (2016). Evaluation of Improved Upland Rice Varieties for Potential Rice Producing Area Kemashi Zone of Benishangul Gumze of Ethiopia, *Ecology and Evolutionary Biology*, 1(1).

Amare and et al. (2019). "*Response of Rain-fed Lowland Rice Varieties to Different Sources of N fertilizer in Fogera Plain, Northwest Ethiopia*", Cogent Food and Agriculture, 5(1).

Amhara National Regional State, Bureau of Environmental Protection, Land Administration and Use (BoEPLAU). (2014). *Tana Sub-basin Land Use Planning and Environmental Study* Project Technical Report Vol.XIII) Bahir Dar.

Amhara Regional Agricultural Research Institute (ARARI). (2016). *Proceedings of the 8th Annual Regional Conference on Completed Research Activities of Socio-Economics and Agricultural Extension*, Bahir Dar, Ethiopia.

Berhanu Gebremedhin and Dirk Hoekstra. (2008). "*Staple Food Crops Turning into Commercial Crops: Case Studies of Teff, Wheat and Rice in Ethiopia*", Ethiopian Journal of Economics, Vol. 17, No.1.

Cheesman, E. R. (1935). *Lake Tana and Its Islands*, The Geographical Journal, Vol.85, No.6.

Dagnachew Legesse and Wubet Gashaw, (2011). *Flood hazard and risk assessment using GIS and remote sensing in Fogera Woreda, Northwest Ethiopia.* In the Nile River Basin, Springer, Dordrecht.

Dawit Alemu and Shiratori Kiyoshi. (2003). "Stakeholder Analysis in Rice Research and Development, FRG II Project", Ethiopian Institute of Agricultural Research, Addis Ababa, Ethiopia.

Desta, Addis, Zeleke Gete, Payne A. William, Shenkoru Teshome and Dile Yihun, (2019).

"The Impacts of Rice Cultivation on an Indigenous Fogera Cattle Population at the Eastern shore of Lake Tana, Ethiopia" *Ecological Processes*, 8(19).

Kebebew Assefa, Dawit Alemu, Kiyoshi Shiratori and Abebe Kirub. (2011). "*Challenges and Opportunities of Rice in Ethiopian Agricultural Development*", Ethiopian Institute of Agricultural Research.

Mekonnen Bekele. (2017). "*Agricultural Water Management and Smallholder Rice Production in Ethiopia*", Ethiopian Development Research Institute and Japan International Research Centre for Agricultural Sciences, Addis Ababa.

Mesfin Afework and Zemedu Lemma. (2016). "*Improved Rice Seed Production and Marketing: Challenges and Opportunities; the Case of Fogera District of Ethiopia*", Journal of Agriculture and Environmental Science, 1(2), Bahir Dar University.

Migongo-Bake, Chantal, Catacutan, D. and Namirembe, S. (2012). "*Assessment of the Headwaters of the Blue Nile in Ethiopia*", Working Paper No. 149, Nairobi: World Agroforestry Centre.

Tamirat Belayneh, and Jember Tekle. (2017). "*Review on Adaptation, Trend, Potential and Constructive of Production to Livelihood in Ethiopia*," International Journal of Research 5(6) Granthaalayah.

Tilahun Gebey, Kahsay Berhe, Dirk Hoekstra and Bogale Alemu (2012). "*Rice value chain development in Fogera woreda based on the IPMS experience*", International Livestock Research Institute, Nairobi, Kenya.

Tilahun Taddesse, Dawit Alemu, and Abebaw Assaye. (2020). "*The White Gold of Wereta: A City Raised on Rice*", APRA Policy Brief 24, Brighton: Future Agricultures Consortium.

## II. Books

Bekur. (1997). "*Rice Production at the Fogera Plain", Magazine of the Amhara National Region State, Tourism and Information Bureau* (Amharic Version), No-3, Bahir Dar.

Gashaw Asfaw. (1989). *Rice production in Ethiopia* (Amharic version), Addis Ababa, Ethiopia.

Huffnagel, H. (1961). *Agriculture in Ethiopia*. Agriculture in Ethiopia, Rome.

Lema, et al. (2016). *Analysis of Technical Efficiency of Rice Production in Fogera District of Ethiopia: A Stochastic Frontier Approach,* Munich Personal RePEc Archive.

Mulat Demeke, Fantu Guta and Tadele Ferede. (2006). *Agricultural Development and Food Security in Sub-Saharan Africa (SSA) Building a Case for more Public Support: The Case of Ethiopia*, Rome.

Online: Ethiopian Institute of Agricultural Research, "Fogera Rice Research and Training Center", *http://www.eiar.gov.et/frrtc, retrieved on July 2021*.

## List of Informants

| No | Name | Age | Interview | | Remark |
|---|---|---|---|---|---|
| | | | Date | Place | |
| 1. | Aläme'näh Amebäreber (Ato) | 68 | February 16 2020 and January, 19,2020 | Meneguzer Kebele | He is a farmer and producer of rice crops. |
| 2. | Awäqä Agäre (Ato) | 42 | January, 29, 2019 | woreta | Expert in the office of Agriculture and Rural Development office in the woreda. |
| 3. | Bayä Abäbä (Belata) | 70 | February 16, 2018 | woreta Zuria Kebele | He is a farmer and producer of rice crops. He is a farmer and producer of rice crops. |
| 4. | Eyayu Räda (Ato) | 50 | February 26, 2018 | Kidiste Hana kebele | He is a farmer and producer of rice crops. |
| 5. | Fäneta Takälä (Ato) | 65 | January, 16, 2020 | Meneguzer Kebele | He is the farmer and producer of rice crop. |
| 6. | Mänegesete Bälay (Märege'ta) | 48 | January 7, 2020 | Woreta | He is a farmer and producer of rice crops. |
| 7. | Merätu Ašagere' (Ato) | 60 | February, 26, 2019 | woreta | Expert in the office of Agriculture and Rural Development office in the woreda. |
| 8. | Sätäñ Bayä (Ato) | 48 | February, 29, 2018 | woreta Zuria Kebele | He is a farmer and producer of rice crops who lived in the area since birth. |
| 9. | Täka Bälay (Ato) | 68 | January, 29, 2020 | Kuhar Mikael Kebele | He is the farmer and producer of rice crop. |
| 10. | Telahun Mäkuanenet (Ato) | 52 | January 16, 2020 | Jigna Kebele | He is a farmer and producer of rice crops. |
| 11. | Waganäš Mulua'läm (Wäyzäro) | 45 | September 29, 2020 | Woreta | Deputy Head, Fogera Woreda Agricultural and Development Head Rural |
| 12. | Wubaläm Amebäreber (Wäyzäro) | 59 | January 16, 2020 | Meneguzer Kebele | She is a house wife and producer of rice crops. |
| 13. | Zänäb Molla (Wäyzäro) | 67 | January, 16, 2020 | Meneguzer Kebele | She is house wife and producer of rice crop. |