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COUNTRIES BASELINE SURVEY REPORT SECOND HUB

Improving Agricultural REsilience to SAlinity Through DEvelopment and Promotion of Pro-poor Technologies and Management Strategies in Selected Countries of Sub-Saharan Africa ``RESADE''

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Overview of the RESADE Project

Salinity affects 19.09 million hectares of land in sub-Saharan Africa (SSA). It is found predominantly in the countries of Eastern Africa, along the coast of Western Africa, the countries of the Lake Chad Basin, and in pockets of Southern Africa. Salinity harms agricultural production, with dire consequences for rural livelihoods, the economy at different levels, the environment, and sustainable development more generally.

However, salinity in SSA is predominantly caused by inappropriate irrigation practices that result in waterlogging as well as by seawater intrusion into coastal farming areas due to the rising sea levels associated with climate change and over-pumping. Mitigation and prevention of salinity are important to further agricultural development in the region, particularly as it transitions from traditional rain-fed agricultural systems to intensive irrigated agriculture, both to address the growing challenges of food insecurity and poverty and to adapt to climate change. Holistic solutions lie in equipping smallholder farmers with technologies and skills that can improve agricultural productivity while conserving and improving the natural resource base. These technologies and skills include: (a) soil and water management practices that improve fertility and mitigate/avert salinization; (b) low-cost, water and energy-efficient small-scale irrigation technologies; (c) best management practices that improve the productivity of existing cropping systems; and (d) adapted climate-smart crops with high tolerance to drought and salinity, and high nutritional and economic value (e.g. quinoa, legumes, etc.).

Thus, the International Center for Biosaline Agriculture (ICBA) proposes to implement a project in partnership with the International Fund for Agricultural Development (IFAD) and the Arab Bank for Economic Development in Africa (BADEA) that will provide the aforementioned solutions in seven SSA countries in which salinization of agricultural land is a growing problem – namely The Gambia, Liberia, Sierra Leone and Togo in Western Africa, and Botswana, Mozambique and Namibia in Southern Africa. The project is called “Improving Agricultural Resilience to Salinity through Development and Promotion of Pro-poor Technologies and Management Strategies in

Selected Countries of Sub-Saharan Africa (RESADE)" and has been implemented since 2019. The initial duration was 48 months but has been extended. The project supports national agricultural development policies and strategies of the target countries by rehabilitating and increasing the productivity of salinity-affected lands and providing technical assistance in salinity management to other IFAD- and BADEA-funded projects being implemented in these countries.

The project targets to directly benefit 11,550 smallholder farmers (at least 50 percent of them women) residing in salinity-affected areas, enabling them to achieve higher agricultural productivity and, consequently, improved food security and incomes. The project is also directly benefiting community-based seed enterprises that will distribute seeds of high-yielding and salt-tolerant cultivars to farmers. Indirectly, the project is benefiting: (i) traders, who will provide agricultural inputs to the farmers in targeted areas and buy their produce; (ii) small and medium-scale food processing enterprises, which will have larger quantities of more varied raw materials for value addition; and (iii) consumers, who will have greater access to locally produced nutrient-rich products at affordable prices.

The project has a principal goal to improve food security and reduce the poverty of poor smallholder farmers, particularly women, in salinity-affected areas in Botswana, The Gambia, Liberia, Mozambique, Namibia, Sierra Leone, and Togo. The main objective is to increase agricultural productivity and incomes in salinity-affected agricultural areas by:

• Introducing salt-tolerant crops and best agronomic management practices

• Developing value chains for introduced cropping systems

• Building the capacity of farmers and extension workers in salinity-resilient and climate-smart agriculture in collaboration with National Agricultural Research and Extension Services (NARES).

As outcomes, the project is expecting:

• Around 11,550 smallholder farmers in targeted areas, at least half of them women, adopt new cropping systems that are resilient to salinity and climate change and utilize climate-smart innovative intensification technologies and practices that increase productivity and mitigate/prevent further salinization.

• In targeted areas, productivity of saline lands is increased by 30%, and economic returns to smallholder farmers are increased by 20%.

• Climate-smart and salinity-resilient agricultural models and approaches are incorporated into national agricultural development policies and strategies in the seven target countries.

The project planned to intervene in two different locations in each country namely first-round and second-round interventions established at different best practice hubs. Table 1 summarizes the project information.

Table 0.1 RESADE project summary information

Project Title	Improving Agricultural Resilience to Salinity Through Development and Promotion of Pro-poor Technologies and Management Strategies in Selected Countries of Sub-Saharan Africa (RESADE)
Location	Togo, The Gambia, Mozambique, Sierra Leone, Liberia, Botswana, and Namibia
Start date	2019
Initial Duration	48 Months + extension
Initial Budget	7.7 million $US
Funding Institutions	International Fund for Agricultural Development (IFAD) and the Arab Bank for Economic Development in Africa (BADEA).
Implementing Institution and Partners	International Center for Biosaline Agriculture (ICBA) in collaboration with National Agriculture Research Stations (NARES), and Islamic Development Bank (IDB).
Project Website	https://resade.biosaline.org/

Purpose of the baseline survey

Before implementing a development project or any intervention, a baseline study is necessarily conducted to gather first-hand data on the current situation, attitudes, and behaviors of the targeted population. To this end, The RESADE project has planned to conduct a baseline survey in two (2) different locations of

each targeted country before the interventions. This present report represents the baseline survey data analysis for the second location/hub of each targeted country.

The baseline survey data assessment serves as a reference point for evaluating progress throughout the project life cycle. This is why the baseline survey should be followed by an end-line survey for impact assessment purposes that enable us to compare the evolution introduced after an intervention. By identifying gaps and providing valuable insights, the baseline study also helps in developing appropriate interventions and establishing important indicators to track progress toward achieving the desired outcomes.

The purpose of this socioeconomic baseline survey before the implementation of the climate-smart technologies in the framework of the RESADE project is to provide an information base against which ICBA will measure the degree and quality of change after the implementation of its projects. The information provided by this survey will be used as a reference or counterfactual during the impact assessment phase for measuring the project's profitability, success, or failure. The information generated from the baseline survey will provide historical points of reference that will inform project planning, target setting, monitoring, and evaluating change during and after project implementation as well as impact assessment.

The RESADE project baseline survey implementation had some specific objectives, which were:

- To establish the starting values for all performance indicators related to impacts and outcomes in the countries being targeted.
- To gather and analyze data on the current situation of the beneficiaries being targeted.
- To gather and analyze data on the production sources and levels, growing crops, income, access to materials and services, productive resources, as well as the nutrition and food security of the farmers being targeted.
- To determine the level of salinity and its effect on crop production and yields, as well as potential strategies used in coping to overcome these challenges.

Key Findings

According to the baseline survey results, the following findings can be reported:

-Farmers in the study areas are persevering and facing soil salinity issues at different levels from one place/farm to another. These challenges make agricultural land unexploitable and decrease crop yield

when farmers are able to cultivate in saline soil. Therefore, farmers don't have access to enough information especially on on soil salinity, nor the necessary strategies to fight against this hazard.

-Farmers in the study areas don't have appropriate and modern agricultural technologies adaptable to new climates, to fight against soil infertility and degradation and boost their productivity. Also, farmers don't have access to necessary infrastructure such as storage and transport facilities and machines.

-Farmers in the study areas are not organized in solid farm cooperatives that can strengthen their activity. This is a big barrier to their access to necessary financial credit and subsidies, their union, and the development of new agribusiness activities.

Recommendations

According to the results, the RESADE project should increase farmers' awareness of climate change and soil salinity, provide them with the necessary technologies to overcome these challenges, organize farmers in different farm cooperations to strengthen them and give them capacity-building training as well as strengthen their capacity to get financial credit, input, and necessary machinery. And finally, the project should make sure to guarantee the perennity and sustainability of all its impact actions during and even after the end of the project.

1 Introduction

1.1 Project context, objectives, and expectations

This report focuses on the baseline survey data and findings conducted in the framework of the second round of the RESADE project, an agriculture project funded by the International Fund for Agricultural Development (IFAD) and the Arab Bank for Economic Development in Africa (BADEA). The project is implemented by the International Center for Biosaline Agriculture (ICBA) in partnership with the national partners- the National Agricultural Research and Extension Services (NARES). RESADE project has been introducing and promoting adapted climate-smart technologies and new crop varieties with high tolerance to salinity and drought-resilient crops to small-scale farmers in several villages in the targeted seven (7) countries since 2019. The targeted countries are The Gambia, Liberia, Sierra Leone, and Togo in Western Africa, and Botswana, Mozambique, and Namibia in Southern Africa. The RESADE project has planned to

implement the project in two (2) different locations of each targeted country. Using the best practice hubs and farmer-field schools' approaches, the project allowed the dissemination of sustainable technologies, to increase awareness and strengthen smallholder farmers with knowledge of new agriculture technologies to especially overcome the growing soil salinity challenges, increase crop yield, and ensure household food security in the targeted areas.

The RESADE project aims to support national agricultural development policies and strategies of the targeted countries by rehabilitating and increasing the productivity of salinity-affected lands and providing technical assistance in salinity management to other IFAD- and BADEA-funded projects being implemented in these countries as well. The initiative will utilize ICBA's crucial previous and current projects as a basis for pertinent and valuable experience in implementing salinity management techniques for small-scale farmers especially women farmers living in severe conditions environments. These projects essentially include:

- Rehabilitation and Management of Salt-affected Soils to Improve Agricultural Productivity (RAMSAP) being implemented in Ethiopia with funding from IFAD;
- Creating Opportunities to Develop Resilient Agriculture (CODRA), implemented in Mauritania and Senegal as well as in Yemen, Egypt, and Lebanon, also with funding from IFAD;
- Improving Crop and Seed Production Systems under Water/Irrigation Management in Sub-Saharan Africa, implemented in Burkina Faso, The Gambia, Niger, Nigeria, Mauritania, Mali, and Senegal, with funding from the Islamic Development Bank (IDB).

Therefore, the RESADE project also aims to enhance food security and, the agricultural market supply chain, and alleviate poverty among smallholder farmers in salinity-affected areas, especially women, in selected countries. To achieve this, the project's main objective is to boost agricultural productivity and income in these areas by eventually introducing salt-tolerant new crops and best agronomic management practices; developing value chains for introduced cropping systems; and enhancing the skills of farmers and extension workers in agriculture that is resilient to salinity and climate-smart, in partnership with NARES.

As the expected outcomes, the project looks forward to the following interconnected results:

- To impact approximately 11,550 smallholder farmers in specific areas, with at least half of them being women. The aim is for these farmers to adopt new cropping systems that can withstand changes in climate and salinity, and to utilize innovative agriculture intensification technologies

and practices that are climate-friendly and sustainable. These methods will help to prevent soil salinization, improve soil quality, and further increase productivity as well.

- To increase the productivity of saline lands by 30% and the economic returns of the targeted smallholder farmers by 20%. This will increase farmers and economic welfare.
- The incorporation of climate-smart and salinity-resilient agricultural models and approaches into national agricultural development policies and strategies in the seven targeted countries. That will improve agriculture policy development in the fight against climate change.

1.2 Baseline Survey Context

Before implementing a development project or any intervention, a baseline study is necessarily conducted to gather data on the current situation, attitudes, and behaviors of the targeted population. To this end, The RESADE project has planned to conduct a baseline survey in two (2) different locations of each targeted country before the interventions. This present report represents the baseline survey data analysis for the second location/hub of each targeted country.

The baseline survey data assessment serves as a reference point for evaluating progress throughout the project life cycle. This is why the baseline survey should be followed by an end-line survey for impact assessment purposes that enable us to compare the evolution introduced after an intervention. By identifying gaps and providing valuable insights, the baseline study also helps in developing appropriate interventions and establishing important indicators to track progress toward achieving the desired outcomes.

The purpose of this socioeconomic baseline survey before the implementation of the climate-smart technologies in the framework of the RESADE project is to provide an information base against which ICBA will measure the degree and quality of change after the implementation of its projects. The information provided by this survey will be used as a reference or counterfactual during the impact assessment phase for measuring the project's profitability, success, or failure. The information generated from the baseline survey will provide historical points of reference that will inform project planning, target setting, monitoring, and evaluating change during and after project implementation as well as impact assessment.

The RESADE project baseline survey implementation had some specific objectives, which were:

- To establish the starting values for all performance indicators related to impacts and outcomes in the countries being targeted.

- To gather and analyze data on the current situation of the beneficiaries being targeted.
- To gather and analyze data on the production sources and levels, growing crops, income, access to materials and services, productive resources, as well as the nutrition and food security of the farmers being targeted.
- To determine the level of salinity and its effect on crop production and yields, as well as potential strategies used in coping to overcome these challenges.

The outline of this report is as follows: apart from the introduction section, the following section provides the methodology including the study areas description, the sampling method, the questionnaire design, and the data collection and processing. The last section presents the main findings from the data collected analysis, the conclusions, and recommendations for each country.

2 Methodology

This section of the report details the intervention site description, the approach, and the methodology used to conduct the baseline survey and analyze the data collected.

The desk study on the project design and proposal including details on the stakeholders and target beneficiaries helped to develop the sampling and data collection methodology and the study tools. The survey work was carried out by the country's local partner's team under the supervision of ICBA scientists and the project management team. The primary data was collected through an individual survey from randomly sampled farmers' households in the targeted areas, using a structured questionnaire in the English language. However, to avoid any confusion, the questionnaires were translated into local languages when necessary for respondents who do not understand English.

2.1 Study Areas

The ICBA proposes to implement the RESADE project in seven Sub-Saharan countries in which salinization of agricultural land is a growing problem and where agriculture plays an important role – namely, The Gambia, Liberia, Sierra Leone, and Togo in Western Africa and Mozambique, Botswana, and Namibia in Southern Africa. However, the second baseline data were collected only in 5 countries (The Gambia, Liberia, Togo, Mozambique, and Botswana). Therefore, the survey has covered 4 villages in the maritime region of Togo (Table 2.1).

Table 2.1 Survey covered areas.

Countries	Regions	Districts	Villages	Village number
Togo	Maritime region	VO	Kouenou	4
			Anyronkope	
			Djankasse	
			Keta-Akoda	
The Gambia	West Coast region	Kombo Central Kombo East Kombo Central Kombo South	Dasilami	4
			Kuloro Tungina	
			Kembujeh	
			Siffoe	

2.2 Sampling

To select respondents in specific districts or regions, the selection criteria during the sampling process were developed. A probability single-stage cluster sampling method to choose participants in target regions across each country has been used. The two-stage sampling approach involved selecting primary units of regions and villages, and households as the ultimate sampling unit. Finally, for this second phase, a total of 60 respondents were interviewed in 4 villages including Kouenou, Anyronkope, Djankasse, and Keta-Akoda in the maritime region of Togo (Table 2.2), which sample size was determined based on the available resources and time for data collection.

Table 2.2 Number of farmers interviewed by country.

Countries	**Number of farmers**	**Male**	**Female**
Togo	60	33	27
The Gambia	60	7	53
Total	120	40	80

2.3 Questionnaire Design

The survey sheet comprises 10 sections, each containing structured questions. Its objective was to gather information about various aspects of the farm household's livelihood. These sections cover general farming aspects and household characteristics, including demographic, social, and economic factors. The

survey also aims to collect data on geographical and spatial factors that impact farming, such as natural disasters, market access, infrastructure access, and road access conditions.

The purpose of Section l of the questionnaire is to collect basic information about the **household's location and demographics**. This information is crucial for ensuring the accuracy and validity of the survey data. Additionally, it will allow us to keep track of individual households during the later stages of the project and the impact evaluation analysis. In Section II, information is gathered regarding the **landholdings of farmers** that aim to determine the per-capita land size that is available for irrigation and non-irrigation farming. Additionally, this section will provide insights into the soil quality and whether households have access to irrigation systems. Section III focuses on the **production portfolio and gathering information on production inputs and outputs**. The section lists all questions on the potential inputs used in different crop production, as well as the crops farm households produce. It also includes information on the quantities of crops consumed at home or sold to the market, along with their respective prices. Section IV provides information on the **labor involved in farming activities**. This labor is categorized into three sub-sections: own labor, hired labor, and household labor employed in the non-farm sector. In Section V, we requested data on **household income by source**. It's necessary to differentiate between various income sources. While farm income will be the main indicator of farm profitability for the impact assessment, income from other sources can also impact the household's capacity to buy production inputs and hire labor, which in turn affects production and overall well-being. Therefore, it's crucial to consider income from other sources in the impact evaluation analysis. The objective of Section VI is to gather information about the **assets owned by households** to determine their poverty level. To create an accurate index, it is necessary to collect information about all assets owned. Therefore, this section aims to identify the types and number of assets owned by each household. In Section VII, there is a comprehensive questionnaire that covers all **potential natural disasters that farmers may encounter.** It also explores how these disasters directly impact farming and whether households have implemented any coping mechanisms for loss. Additionally, the section gathers data on soil and water salinity, which is one of the crucial aspects of the project. Section VIII represents information on gender that will be used to assess **women's involvement in agricultural activities**, later in the project, and decision-making. In Section IV, we aim to collect data on **households' access to food**. This information will help establish a benchmark for food security, which we will use during the evaluation phase to measure the project's impact on food security and child nutrition before and after implementation. Finally, section V gathered information on household **access agricultural market and information on agricultural product**

market prices. This section's questions seek to collect data on the value chain and market functioning to take actions of development during the project implementation.

2.4 Data Collection and Processing

The team responsible for collecting data underwent training on survey questionnaires and data collection processes. Before starting the survey, they conducted a pre-test of the questions. Any issues raised by the interviewers were thoroughly examined, discussed, rectified, and incorporated into the final survey questions. The NARES teams in each country collected data using the structured questionnaire between September 2023 to April 2024 for the second round of the project. All the data collected was entered into the MS Access database and later into Microsoft Excel. Once data entry and cleaning were complete, it was imported into STATA software for various statistical descriptive analyses, and the results are presented below.

Results Report by Country

3 Country: Togo

3.1 Togo Country Profile

Togo is a country in West Africa that shares borders with Ghana, Benin, and Burkina Faso. As of 2023, it is home to an approximate population of 8.5 million people. The total land area of the country is 56,785 square kilometers, comprising 54,385 square kilometers of land and 2,400 square kilometers of water. Around 70.2% of the land is used for agriculture, and 22.2% is covered by forests, according to estimates from 2020 (WB, 2023).

The climate in Togo ranges from tropical to savanna, with distinct dry and rainy seasons. The African monsoon brings the rainy season from April to October in the central regions and from May to October in the northern areas. Coastal regions experience reduced rainfall between July and September. Rainfall varies, with around 900 millimeters per year along the coast, 1,000 millimeters in the northern Savanes Region, 1,300 to 1,400 millimeters in the central and northern inland regions, and up to 2,000 millimeters in the western Plateaux Region. The southern part of the country has a humid climate, with an average annual temperature of 27°C. In the north, temperatures fluctuate significantly between 17°C and 41°C.

Rainfall in the southern region occurs in two main seasons: mid-March to late July and early September to early mid-November.

Togo possesses valuable natural resources such as phosphates, limestone, marble, and fertile land. Its agricultural products include cassava, maize, yams, sorghum, beans, oil palm fruit, rice, vegetables, cotton, and groundnuts. Subsistence agriculture and trade play crucial roles in the country's economy. Agriculture contributes around 40% to Togo's GDP, with various components like food crops (26%), cash crops (4%), livestock products (6%), fishery products and aquaculture (2%), and forestry (2%) (Tchinguilou et al., 2013; UNDP, 2018). A significant portion of the workforce, about 70%, is employed in agriculture. However, poverty levels are higher in rural areas (58.8%) compared to urban areas (26.5%), especially among female-headed households (Tossou, 2015).

Togo's GDP composition is roughly 28.8% from agriculture, 21.8% from industry, and 49.8% from services. The International Monetary Fund (IMF) ranks Togo as the tenth poorest nation globally, with over half of the population experiencing poverty and food insecurity due to an annual population growth rate of 2.3%, hindering development progress. Togo is deemed highly susceptible to climate change effects, as indicated by its position at 135 out of 181 countries in the 2020 ND-GAIN Index. Forecasts of climate variability and change, including rising temperatures, altered rainfall patterns, extended dry periods, and increased aridity, pose significant threats to Togo's agricultural sector and its future consequences. The country's strategy for adapting the Agriculture, Forestry, and Other Land Use (AFOLU) sector includes capacity building, enhancing crop and livestock resilience, promoting sustainable forest management, and implementing sustainable land management practices. Integrated Soil Fertility Management (ISFM), micro-irrigation systems, and support for climate-vulnerable area mapping are part of these efforts (UNFCC, 2015). Togo has committed to the Climate-Smart Agriculture approach outlined in ECOWAS' agricultural policy and its own National Policy for Agricultural Development 2013–2022 (NDC, 2016). Table 3.1 summarizes the country's main indicators from the World Bank database.

Table 3.1 Togo-Country Profile Indicators

Indicator	Value
Population, total	8,848,699 (2022)
Population growth (annual %)	2.3 (2022)
GDP (current US$)	8.13 (2022 billion)
GDP per capita (current US$)	918.4 (2022)
GDP growth (annual %)	5.8 (2022)
Unemployment, total (% of the total labor force) (modeled ILO estimate)	4.1 (2022)
Poverty headcount ratio at $2.15 a day (2017 PPP) (% of the population)	28.1 (2018)
Literacy rate, adult total (% of people ages 15 and above)	67 (2019)
Urban population (% of the total population)	44 (2022)
Total greenhouse gas emissions (kt of CO2 equivalent)	8,395 (2020)
CO2 emissions (metric tons per capita)	0.3 (2020)
Droughts, floods, extreme temperatures (% of population, average 1990-2009)	0.5 (2009)
Internally new displacement associated with disasters (number of cases)	16,000 (2022)
Forest area (% of land area)	22.2 (2020)
Agricultural land (% of land area)	70.2 (2020)
Crop production index (2014-2016 = 100)	111.3 (2021)
Livestock production index (2014-2016 = 100)	118.2 (2021)
Agriculture, forestry, and fishing, value added (% of GDP)	18.3 (2022)
Prevalence of severe food insecurity in the population (%)	18.8 (2020)

Source: World Bank Microdata World Development Indicators

3.2 Household Demography and Socioeconomic Profile

In Togo, during the baseline survey, a total of 60 farmers were interviewed in 4 villages including Kouenou, Anyronkope, Djankasse, and Keta-Akoda in the Maritime region of the country. Looking at the frequency, the number of farmers was distributed fairly among the villages covered by the survey (Table 3.2).

Table 3.2 Respondents' distribution by village

Villages name	Frequency	%	Cumulative
Kouenou	15	25	25
Anyronkope	15	25	50
Djankasse	15	25	75
Keta-Akoda	15	25	100
Total	60	100	-

According to the data gathered from the survey, approximately more than half of the respondents were male farmers (55%), with an average age of 47 years old. 47% of the respondents were female farmers, with an average age of approximately 47 years old as well. Overall, the estimated average age of all the

respondents regardless the gender was around 47 years old. However, the respondent's minimum age was 18 years, while the maximum age was 82 years old regardless of the gender type (Table 3.3).

Table 3.3 Respondents' gender and age distribution

Respondent gender	Number		Age (years)		
	Frequency	%	Mean	Min	Max
Male	33	55	46.78	18	82
Female	27	45	47.14	26	70
Total	60	100	46.95	18	82

It can be reported that around 62% of households are headed by males, while only about 38% are headed by female respondents. The estimated average age of household heads is approximately 48 years old, with variations based on gender. Female household heads have an average age of around 52 years, while the average age for male household heads is estimated to be 48 years (Table 3.4).

Table 3.4 Household head characteristics

Household head	Frequency	%	Mean age (years)
Male	37	61.67	47.68
Female	23	38.33	52.2
Total	60	100	48.29

The number of people in a household can range from a minimum of 2 persons to a maximum of 14 people with a median of 6 individuals, a mean of around 7 persons, and a standard deviation of around 3 individuals. On the other hand, most household members regardless the gender belong to the groups of 14 years old and below and 15 years old to 65 years old. However, the elderly respondent group such as those who are 65 years old or older represents the smallest fraction of household composition for the male as well as for the female group of respondents (Table 3.5).

Table 3.5 Household demographic composition

Household group information		Min	Max	Mean	Median	Std. Dev.
Household size		2.00	14.00	6.87	6.00	2.63
Male	14 years of age and below	0.00	4.00	1.20	1.00	1.17
	15 years of age and above	0.00	6.00	2.17	2.00	1.35
	65 years of age and above	0.00	2.00	0.17	0.00	0.42
Female	14 years of age and below	0.00	5.00	1.12	1.00	1.12
	15 years of age and above	0.00	6.00	2.20	2.00	1.33
	65 years of age and above	0.00	1.00	0.07	0.00	0.25

Based on the survey data analysis, among the principal respondents, 59 were household headers out of 60 respondents. Approximately 95% of households are headed by individuals who are married. On the other hand, approximately only 2% of household heads are single regardless the gender. However, it is worth noting that the marital status of household heads varies slightly based on gender. Specifically, most male heads of households are married (around 90%), while only 5% of female heads are married (Table 3.6).

Table 3.6 Household head marital status

Household head	Married		Single		Total
	N	%	N	%	N
Male	53	89.8	0	0	53
Female	3	5.08	1	1.69	4
Total	56	94.8	1	1.69	57

Based on the data gathered on the educational background of households, it shows that around 77% of all the sample including household members were literate. However, around 62% of surveyed households had heads who were able to read and write (literate). In contrast, only 35% of the heads were reported to be illiterate (cannot read and write) and 3% of the information was missing. Among the household members of the sample that confirmed enrolment in formal education, only 34% of them had completed primary school, 39% secondary school, and 4% high school (Table 3.7).

Table 3.7 Respondent education profile

Literacy rate household head			Formal Education/ Highest degree obtained in the household		
Level	Frequency	%	Schooling level	Frequency	%
Literate	37	61.66	Primary School	138	33.74
			Secondary School	159	38.87
Illiterate	21	35	High School	18	4.40
			Bachelors	2	0.48
Missing value	2	3.33	Master	1	0.24
			PhD	1	0.24
			Never been to school	90	22.00
Total	60	100	Total	409	100
			Average schooling (years)	8.06	-

The data analysis revealed that in terms of household income, the average annual income per household is estimated approximately at 327,986 Togolese francs CFA. The average income from men and women are respectively 39,847.22 and 25,655.19 FCFA with both men and women contributing more considerably (311,834.5FCFA) (Table 3.8).

Table 3.8 Household income is earned by gender.

Income	Min	Max	Mean	Std. Dev.	Total observation
Men income	0	1,000,000	39,847.22	160,538.6	144
Women income	0	420,000	25,655.19	66,053.67	145
Both	0	6,000,001	311,834.5	63,7211.1	145
Total income	0	3,000,000	327,986.1	411,480.6	144

In terms of income source, among the targeted population in the survey, farming is the main source of household income, contributing around 43% to total household income, followed by livestock (29%), trade (15%), and temporary employment (approximately 6%). A comparatively small percentage of household income comes from other sources, including non-agricultural sources such as aid, permanent employment, and remittance (Figure 3.1).

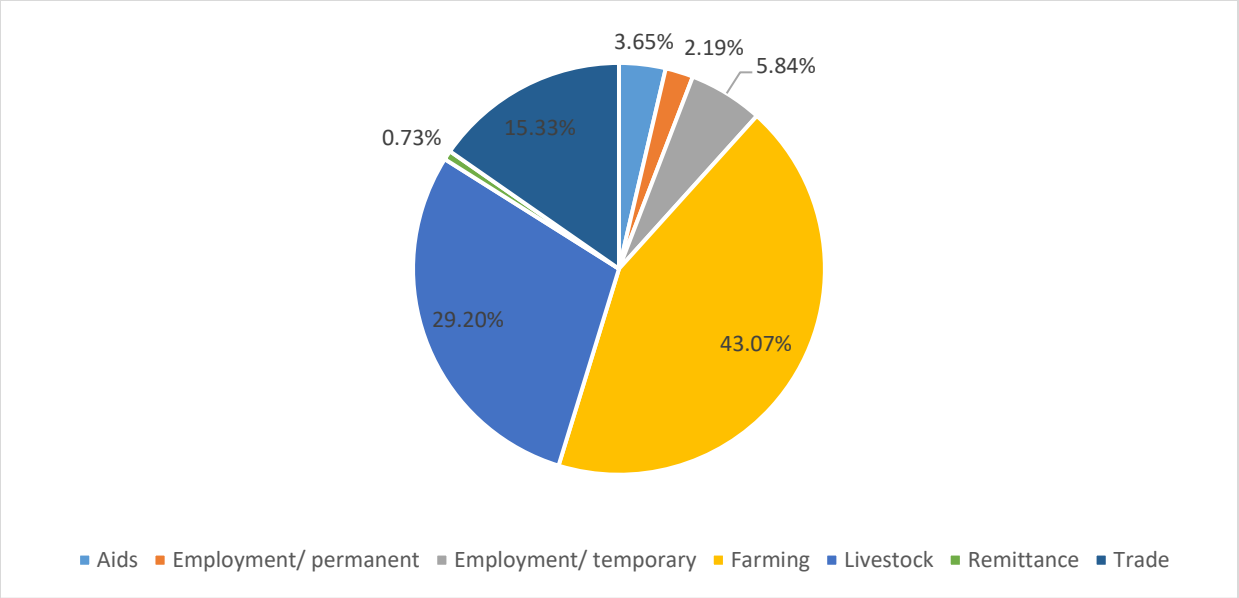


Figure 3.1 Household income by source.

On the other hand, results in expenditure and decision-making of expenses related to food and non-food items acquisition revealed that most of the household income is spent on non-food items (average 52,016 Fcfa) than on food consumption (average 18,350 Fcfa). However, both males and females have a word to say in household expenditure decision-making, and the same results have been found on both sides (Table 3.9).

Table 3.9 Decision-making by gender in consumption expenditures.

Decision maker	Food expenditure Freq (%)	Non-food expenditure Freq (%)
Men	1(1.69)	1(1.69)
Women	2(3.39)	2(3.39)
Both	56(94.92)	56(94.92)
Total	59(100)	59(100)

Data on household asset ownership reported indicates that the most commonly used assets are house ownership (44.21%), followed by car/track (15.79%), electricity generator (9.79%), computer/internet possession (5.64%), bikes or motorbikes (5.04%), Thresher (3.86%), TV and radio (2.37%), tractors (2.37%)

and refrigerators (1.78%). Many assets are collectively owned by both genders, especially most of them own houses, while men possess more tractors, and women own more electricity generators (Figure 3.2).

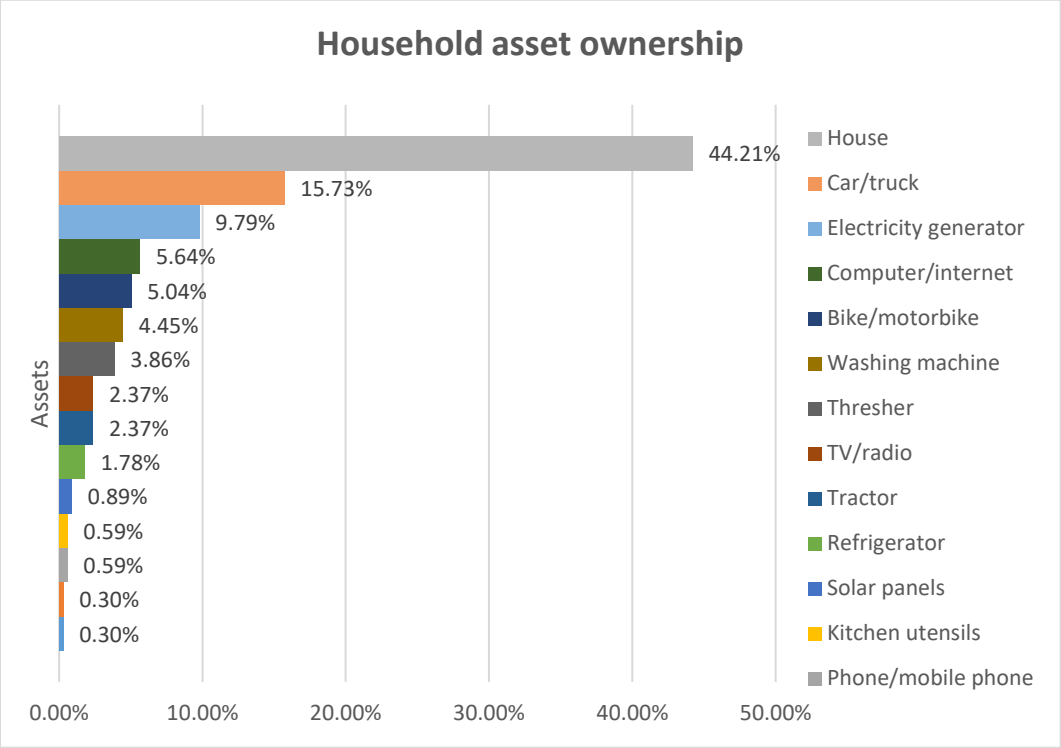


Figure 3.2 Household asset ownership.

3.3 Land ownership and agricultural production.

In this section, the interviewed farmers were asked to specify whether they were using their own, rented, or shared agricultural land. This section also collects and analyses data on agricultural production including the most common crops planted by the farmers, the irrigated and rainfed areas (ha) area allocated to each crop, and the amount of Kg obtained by the crop as well. As a result, 51.49% of farmers rented out the land, while 40.59% of the respondents owned the land, 6.93% shared the farmland to grow their products, and only around 1% leased the land (Figure 3.3).

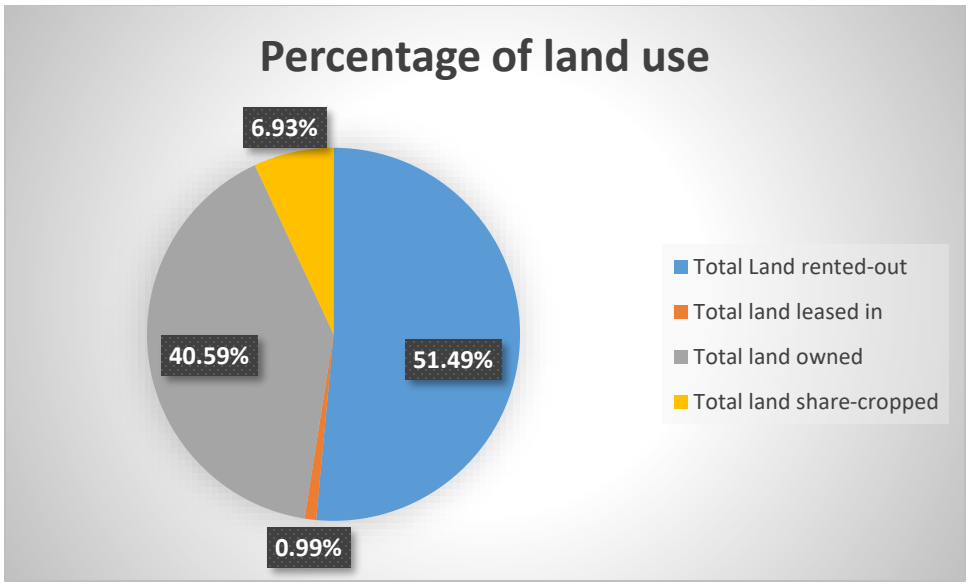


Figure 3.3 Land use by type of holding.

The total average size of land holdings is around 2.44 ha (of which 1.79 ha is cultivated and only 0.05 ha has left fallow). Most of the land cultivated by the household is rainfed (average of 2 ha), with irrigated land (average of only 0.44 ha) accounting for only a small proportion of the total (Figure 3.4).

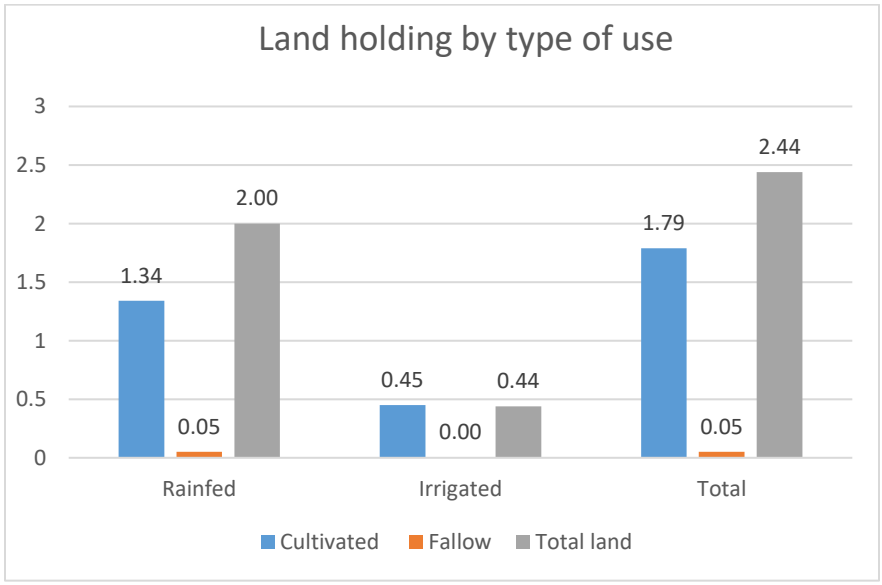


Figure 3.4 Landholding by the type of use.

To evaluate the agricultural soil structure (sandy, clay, or loam) and fertility (1=very poor, 2=poor, 3=average, 4=good, and 5=very good) the respondents were asked according to their feeling and perception to indicate the productivity of the land. About 38% of the farmers reported that the soil is sandy, while 22 think it is clay. Most of the people around 48% of households felt that the level of their

farm soil fertility was average, 28% think that soil fertility is very poor and 18% feel it is poor in terms of crop yields or production results (Table 3.10).

Table 3.10 Soil type and fertility

Soil type				Soil fertility			
Type	Frequency	%	cumulative	Fertility level	Frequency	%	cumulative
Sandy	38	63.33	63.33	Very poor	17	28.33	28.33
Clay	22	36.67	100	Poor	11	18.33	46.67
Loam	00	00	100	Average	29	48.33	95.00
Total	60	100	-	Good	3	5.00	100
				Total	60	100	-

According to the data reported, among the respondent's cultivated products, it is found that maize (produced by 100% of farmers), cassava (68% of farmers), tomato (55% of farmers), mung bean (33% of farmers), and groundnut (15% of farmers) as the most prioritized staple food crops. However, maize dominates the production portfolio as 100% of the households in the sample reported growing maize (Figure 3.5). The average production value for maize is estimated to be 772 kg per household, while tomato, pearl millet, and cassava's average quantity of production by household are among the highest yields. On average, households consumed more pearl millet (average of 500 kg), maize (391 kg), cassava (253 kg), and mung bean (115 kg). Moreover, by comparing the quantities of staple crops produced, and consumed, the results can be estimated by the fact that maize, pearl millet, and cassava are the most produced and consumed in the targeted villages. In terms of productivity lost after harvesting, the data also confirms that the greatest post-harvest losses are in tomato, maize, cassava, and groundnut yields (Figure 3.6). These losses are not neglected, they represent a big amount of loss as wheat and sorghum are also part of the crops consumed by the household according to the analysis findings. To solve this problem, the project can provide some modern promoted harvesting machines and storage facilities. Besides that, after harvesting, in addition to consumption, cassava, pearl millet, and tomato are among the crops sold in the market by the households that allow them to have revenue. The selling prices vary among the products and on average 150 to 500 FCFA.

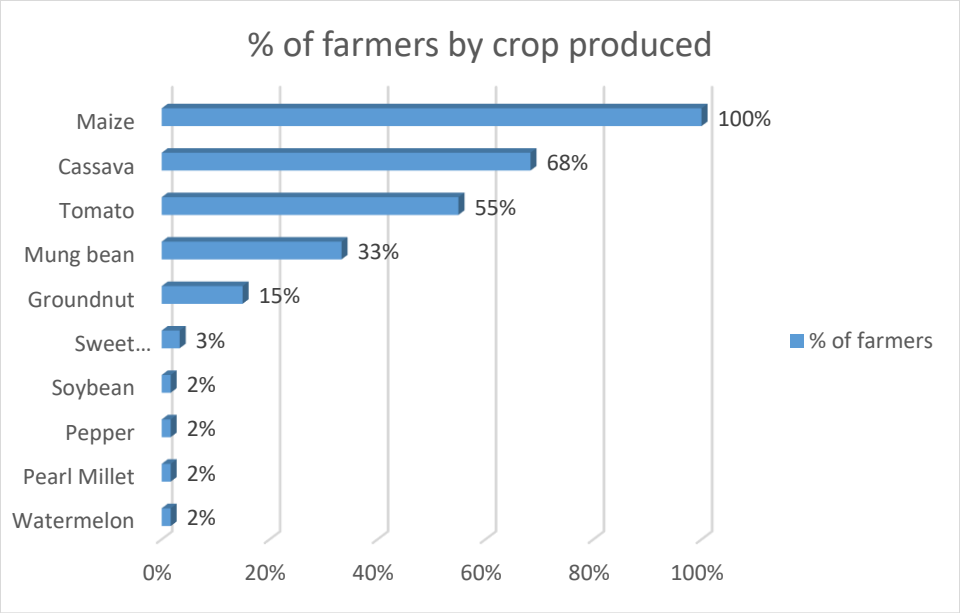


Figure 3.5 Percentage of farmers by crop cultivated.

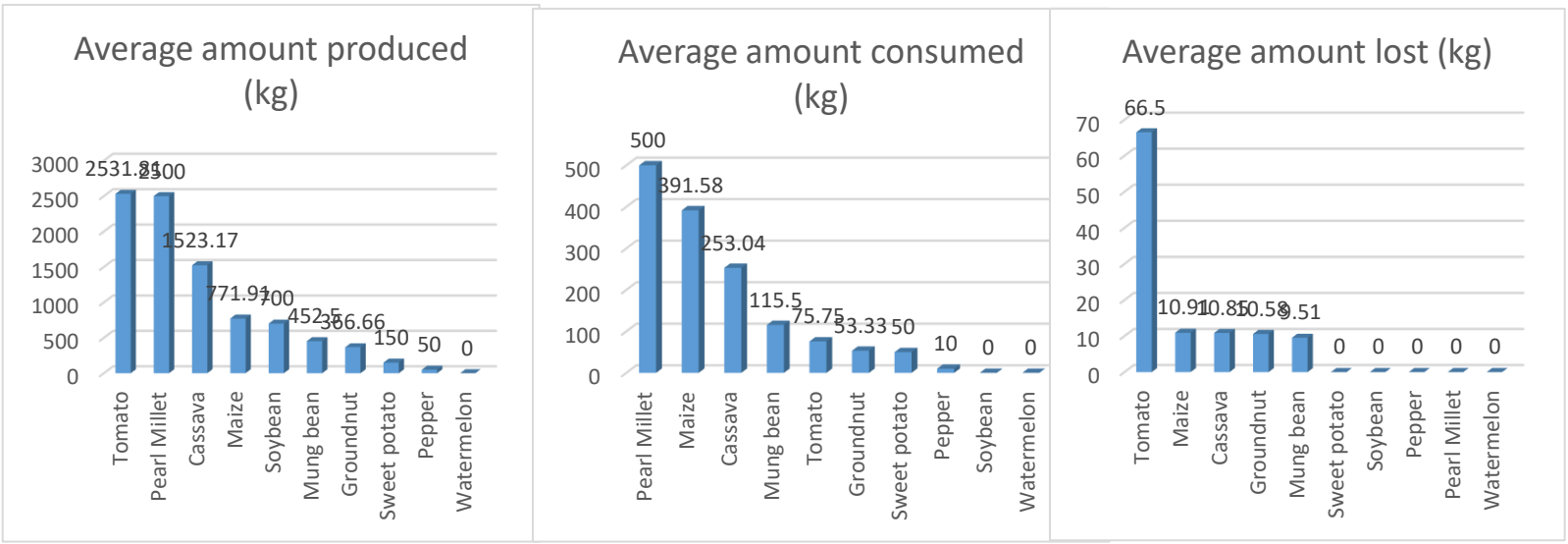


Figure 3.6 Quantity of crops produced, consumed, and lost.

The data of land allocated by crops show that the rainfed area is large compared to crops allocated to irrigation system area. Also, only 3 crops including tomato, pepper, and watermelon occupied a large part of the irrigated lands (Figure 3.7). With 136.15 ha as the total land resulted from the data, the estimations of the land allocated to the main crops show that around 38% (51.85 ha) of cultivated land is devoted to

maize production, followed by around 26% (35.75 ha) of the land allocated to cassava production, 21% (28.4 ha) to tomato production, 9% (11.65 ha) to mung bean production, and 3% (3.9 ha) of the total land is allocated to groundnut production (Figure 3.8). Despite that, the yield data shows higher production per unit firstly for tomato, pearl millet, cassava, and maize as mentioned above. This may suggest that the production of maize, pearl millet, and cassava is not currently producing favorable yields, which is why more land is allocated to those staple crops. With the introduction of new crop varieties through the RESADE project, farmers will be able to diversify and increase yields of staple crops as well as food security.

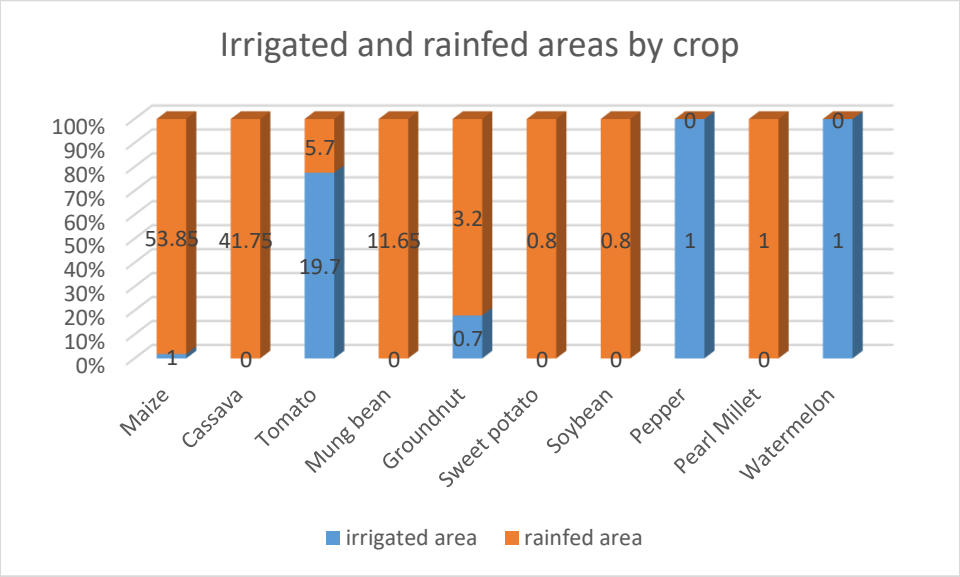


Figure 3.7 Land allocated to the type of water used by crop cultivated.

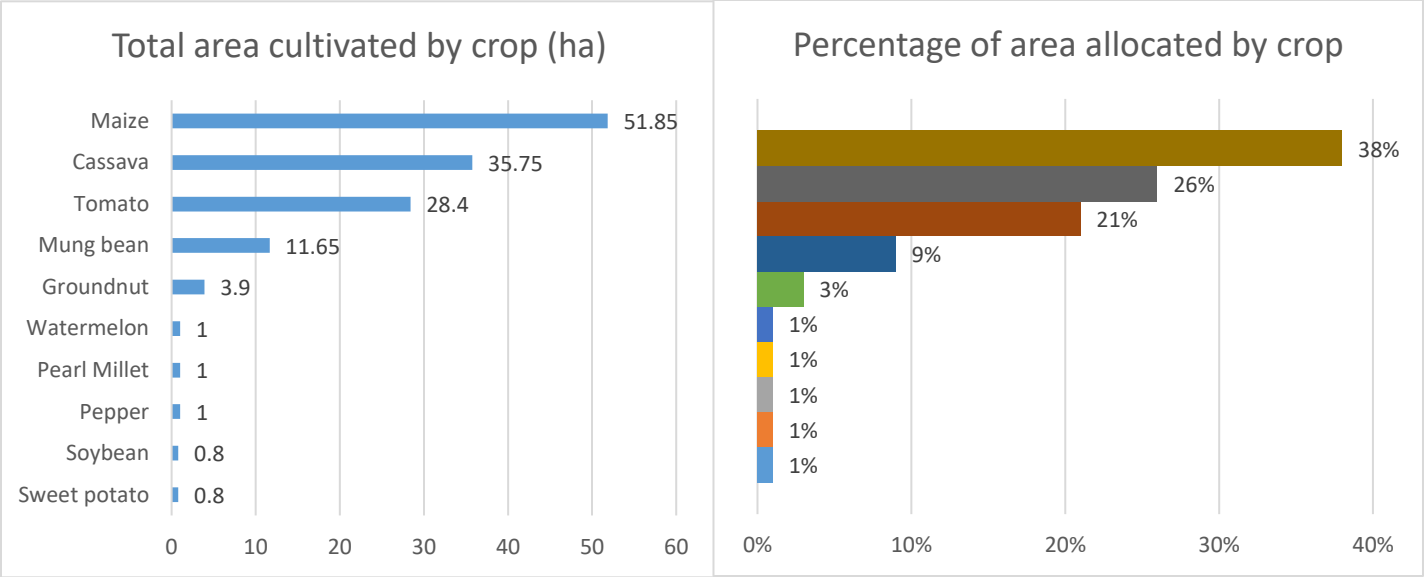


Figure 3.8 Areas allocated to each crop production.

Data on household ownership of livestock shows that the largest group of households have poultry (around 40%), while around 35% of households reported owning goats and 25% sheep. In total, a minimum of 3 chickens and a maximum of 500 (with an average of 37 animals by household), a minimum of 2 goats and a maximum of 25 (with an average of 10 animals owned by a household), and a minimum of 2 and 30 sheep (an average of 8 animal head) are owned by the household. However, we did not get information on households reporting owning other animals, such as beef, and cows (Table 3.11).

Table 3.11 Distribution of animals owned by respondents.

Livestock	Freq.	Percent	Cum.	Min	Max	Mean
Chickens	39	39.39	39.39	3	500	37
Goat	35	35.35	74.75	2	25	10
Sheep	25	25.25	100	2	30	8
Total	99	100	-	-	-	-

3.4 Farmers' Organizations and Access to Extension Services

This section analyses information on farmers' membership in farming organizations and their access to extension services provided by the government or other development projects. Around 25% of the households in the sample reported that they did not have access to extension services, while around 75%

confirmed that they did have access to extension services. In the next question, sample households were asked to indicate the number of times extension workers visited their farms on a scale of 0 to 3, where 0 = never, 1 = rarely (once in three months), 2 = sometimes (once or twice a month), and 3 = at least once a week. Of the households that reported having access to extension services (45 farmers or 75% of farmers), 33% answered 'rarely', while 30% answered that 'sometimes' they have a visit from agriculture extension services, while only around 12% claimed that the extension services agents visit them at least once a week (Table 3.12).

Table 3.12 Farmer access to extension services

Access to extension services		Number of extension visits				
		Never	Rarely	sometimes	at least once a week	Total
Yes	Freq.	0	20	18	7	45
	%	0.00	33.33	30.00	11.67	75.00
No	Freq.	15	00	00	00	15
	%	25.00	0.00	0.00	0.00	25.00
Total		15	20	18	7	60

Membership in farmers' organizations is generally important. These organizations provide essential information on technical aspects of agricultural production, input and technical support, marketing support, and price information as well as the possibility to get access to credit from credit institutions. Access to this information is essential for farm households to increase their production and income by helping them to identify suitable products and improve their income and welfare. However, according to the survey data, in Togo, around 64% of respondents said they did not have access to or were not members of farmer organizations, and only 36% of them said they were members of different farmer organizations (Table 3.13).

Table 3.13 Farmer membership of a farmer organization

Member of farm organization	Frequency	%	Cumulative
Yes	21	36	36
No	37	64	100
Total	60	100	-

3.5 Labor Involved in Farming Activities

In this section, in order to assess the amount of labor used in agriculture, information was collected on the household's own and hired labor. Data were also collected on household workers who worked outside the farm. Globally on average, about three workers were employed on the farm for about 17 days in total per month and about 8 hours in total per day regardless the gender. Although labor use appears to be generally balanced between the sexes, these estimates vary slightly by gender, but we found that approximately both men and women work 4 hours a day. The average total wage was estimated at just over 1,900 FCFA, with a proportional average wage for male workers at 1,608 FCF and female workers at 1,335 FCFA (Table 3.14).

Table 3.14 Use of labor in the household for agricultural activities

Gender	Variables	Mean	Sd. Dev	Min	Max
Male	Avg no. of laborers (month)	1.48	0.86	0.00	4.00
	Avg. days worked. (days/month)	9.34	4.33	0.00	15.00
	Avg hours worked (hours/day)	4.55	1.51	0.00	8.00
	Wage (LCU/day)	1,608.16	581.35	0.00	2,500.00
Female	Avg no. of laborers (month)	1.43	0.84	0.00	4.00
	Avg. days worked (days/month)	7.31	3.20	0.00	15.00
	Avg hours worked (hours/day)	3.77	1.32	0.00	6.00
	Wage (LCU/day)	1,335.03	530.96	0.00	2,000.00
Both	Avg no. of laborers (month)	2.88	1.34	0.00	7.00
	Avg. days worked (days/month)	16.53	6.82	0.00	25.00
	Avg hours worked (hours/day)	8.26	2.51	0.00	12.00
	Wage (LCU/day)	2,922.07	919.97	0.00	4,500.00
Number of observations		60			

The data on hired labor shows that around 83% of the households in the sample recruit labor from the market to carry out farm work at some time during the year, while only around 17% of the respondents do not hire. The average number of workers indicates that around 4 workers are hired on the market each month, working an average of 14 days a month. The average wage is estimated at 2,900 FCFA. Therefore,

almost 29% of the households reported that members of their household were engaged in non-agricultural work/off-farm income activities (Table 3.15).

Table 3.15 Labor hired by the households for work on the farm.

Variables	Mean	Sd.Dev.	Min	Max
Total hired labor (month)	4.13	4.02	0.00	30.00
Hired labor days (month)	14.15	8.22	0.00	48.00
Hired labor hours (hours/day)	4.62	1.43	0.00	6.00
Hired labor wage (LUC/day)	2,941.67	4,184.41	0.00	25,000.00
Number of observations	60			

3.6 Natural Disasters and Soil Salinity Issues

In this section, information on natural disasters has been collected and analysed. The country is often faced with natural disasters and other shocks that exacerbate climate-changing conditions and hamper agricultural activities. However, the results of this baseline survey showed that unusual increases in food prices aftershocks, drought, unusual decline in household income, unusual decrease in farmgate prices, crop pests and plant new disease outbreaks, insecurity, the reduction in irrigation and drinking water, flood, deaths, loss of house, land, and livestock, and some extreme weather conditions are the most common shocks and natural disasters faced and reported by the smallholder farmers households. The data revealed that the severity of these shocks was especially high for drought, new pests and diseases, increases in food prices, and decline in household income (Figure 3.9).

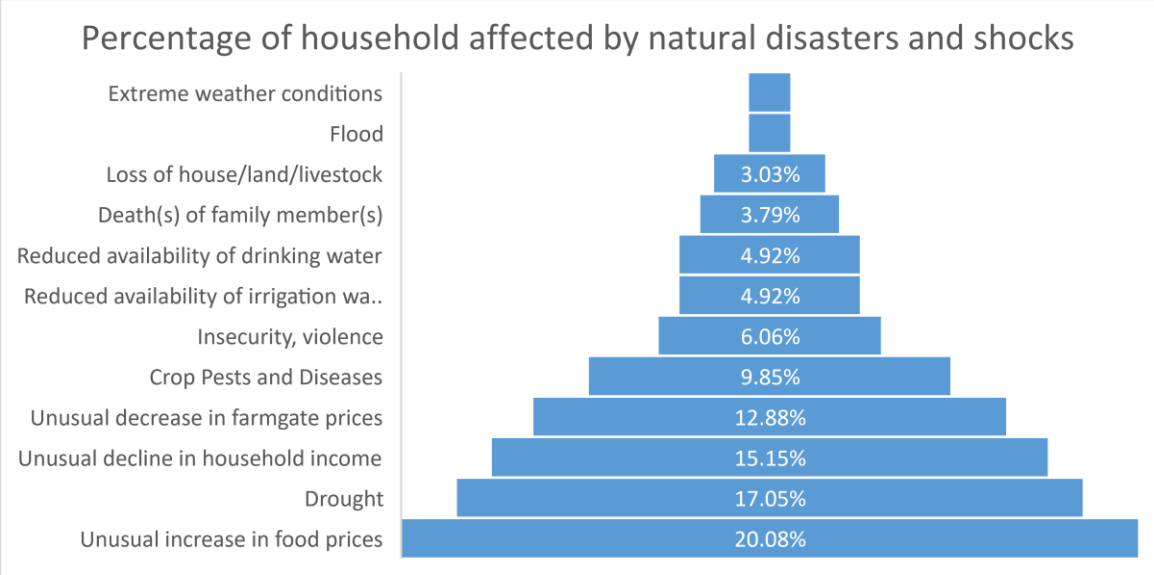


Figure 3.9 Natural disasters and shocks faced by farmers.

As the RESADE project aims to deal with soil salinity issues and improve farm productivity, some data was also collected about the soil salinity in the survey conducted areas. In Togo project second round areas, almost 82% versus 18% of the households in the sample reported that soil salinity is a permanent problem in their villages and 40% versus 60% of respondents said that soil salinity has affected their farmland. Also, 83% reported that soil salinity is a common problem in irrigated areas, and only 17% of them reported it is common in rainfed areas. This soil salinity problem directly affects agriculture productivity and leads to yield losses and income decline. Despite those challenges, almost all the respondents (56 farmers out of 60) claimed to not receive any training on salinity issues. While asking farmers how they recognize the soil salinity symptoms, low infiltration of water (54% of respondents), soil compactness (36% of respondents), white crust on the surface of the soil (47% of farmers), and dark brown color of the soil (23% of farmers) were reported by about the households in the sample as the most common symptoms of salt-affected soil. These results do not show a high percentage of farmers who know very well salinity symptoms. However, when asking about the severity of the impact of salinity, we found that the impact varied from one farm soil to another. Most households (71%) reported a low level of salinity, resulting in 5-25% yield loss. Only around 4% of them reported that their land was severely affected by high salinity, resulting in 25% yield loss. 30% of households reported medium severity, resulting in a final yield loss of 25-50%.

In addition, farmers were also asked to define the causes of soil salinity. The reported data show that more than 35% of the farmers indicated that salinity is the result of the land leveling problem. Around 18%, 11%, and 2% indicated that soil salinity is the result of parent material (natural factors), the high salt

concentration in irrigation water, and climatic/arid conditions respectively as the main cause of salinization. Moreover, the other majority (33%) of the respondents reported other causes especially the water coming from the wide opening of rivers orifices that underwater farmlands as the causes of soil salinization. To cope with salinity and other climatic disasters, it has been reported that some farmers use deep plowing, crop rotation, drainage or leaching, and soil amendment (i.e. application of Gypsum) strategies.

3.7 Gender and Women's Involvement in Agricultural Activities

This section aims to analyse information relating to gender balance, in particular women's involvement in agricultural activities and decision-making within households. When respondents in the sample were asked to indicate the sectors in which women were involved, although more than 30% reported that both men and women were involved in farming and livestock activities, almost 40% of households stated that women were actively involved in agricultural activities. In contrast, women's involvement in livestock production was much lower, with 24% of respondents stating that women were involved in livestock production. However, women also play an important role in off-farm activities, with a little bit over 35% of households confirming that women work in off-farm sectors. In terms of decision-making, about 95% of the respondents in the survey area stated that women are actively participating in farming activities decision-making in the study area as well as in decision-making related to household management (around 97% of the respondent's affirmation) (Table 3.16).

Table 3.16 Women's involvement in decision-making.

Women's involvement in decisions making	Yes		No		Total
	Freq.	%	Freq.	%	
Household decision	58	96.67	2	3.33	60
Farm activity decision	57	95.00	3	5.00	60

As mentioned above, the descriptive statistics analysis revealed that the participating households said that women were actively involved in household decisions in general and in agricultural activities decisions in particular. From this, specifically, it has been found that most decisions relating to land management, the choice of cultivated crops, the purchase of tools and agricultural inputs, the number of hired laborers on the market, the sale of agricultural products, food, and non-food expenditures are taken jointly by both

women and men. In addition, although the majority of decisions are made jointly by men and women, it can be related that a significant number of households reported that men are more prioritized in decision-making, particularly for land access, farm tools access and hire labor (Table 3.17 and Figure 3.10).

Table 3.17 Percentage of gender decisions by items expenditures.

Gender	Decision making/ Freq (%)								
	Land access	Crop cultivation	Inputs use	Farm tools	Hire labor	Crop selling	Income spends	Food expense	Nonfood expense.
Men	17 (28.81)	9 (15.00)	9 (15.00)	11 (18.64)	12 (20.00)	5 (8.47)	7 (12.28)	1 (1.69)	1 (1.69)
Women	3 (5.08)	3 (6.67)	5 (8.33)	4 (6.78)	5 (8.33)	7 (11.86)	2 (3.51)	2 (3.39)	2 (3.39)
Both	39 (66.10)	47 (78.33)	46 (76.6)	44 (74.58)	43 (71.67)	47 (79.66)	48 (84.21)	56 (94.92)	56 (94.92)
Obs.	59	60	60	59	60	59	57	59	59

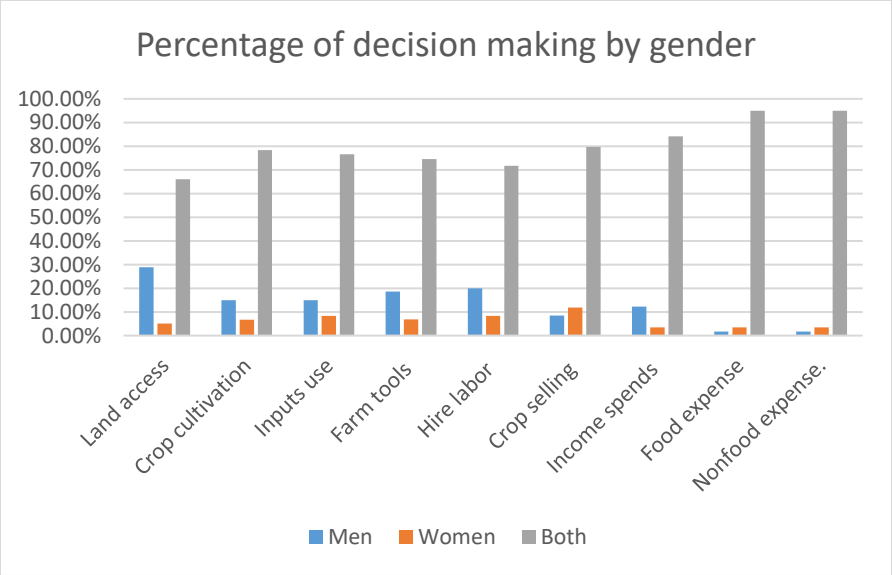


Figure 3.10 Gender involvement in decision-making related to farming activities.

3.8 Food Consumption and Nutrition

To assess the food security situation of the target rural households, data was collected on household food consumption and the types of food consumed. The aim was to identify the main staple foods, to determine whether households had enough to consume throughout the year, and whether households depended on the market or their food production for their consumption. The figures on food consumption show that the households in the sample have widely consumed maize (100% of respondents), rice (98%), oil/better (97%), vegetables (93%), beans and peas (88%), fruits (78%), and potatoes (73%) over the past seven days. This indicates that these products are part of important components of household food consumption/diets and play a vital role in their food security (Figure 3.11).

In general, household demand for food is met both by their production and from local markets. For example, the results showed that household demand for maize consumption is almost entirely met by their production. while other products such as rice consumption are entirely met by the market. However, households rely heavily on the market for vegetables, fruit, meat, potatoes, and butter or cooking oil. While almost all households in the sample said that beans were mainly grown at home, a significant third of households also rely on the market. Also, it is worth mentioning that food charity and food aid have been received by some households, but they can only cover a small proportion of household food needs.

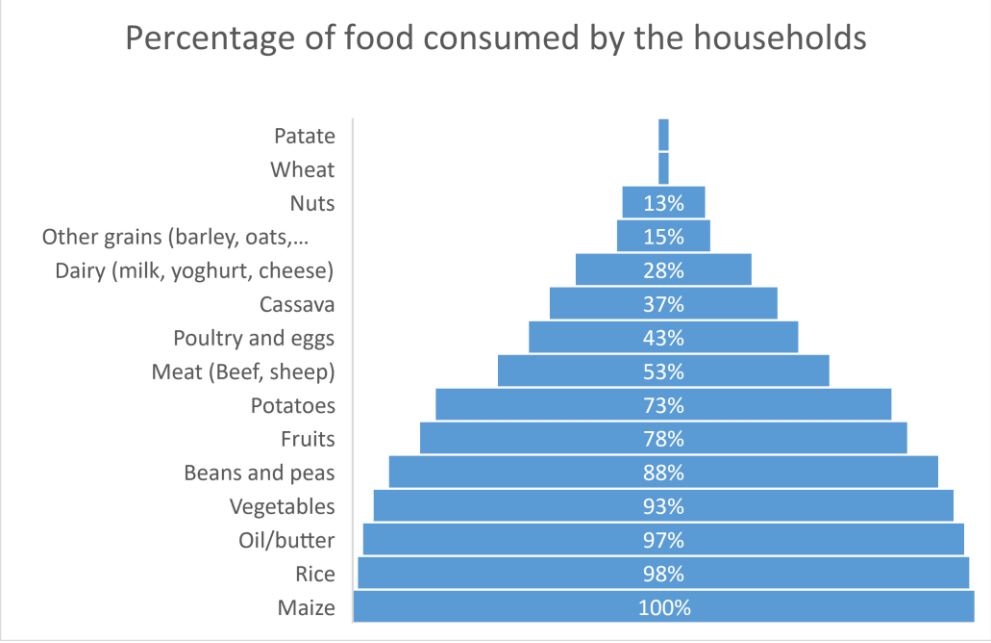


Figure 3.11 Percentage of food consumed by the household.

3.9 Access to Infrastructure and Services

This section of the survey analyses the information on household access to infrastructure and services, including road and market access, access to drinking water, agricultural credit, and health and education facilities. 95% of the respondents reported having access to within-community local markets, 98% reported having access to roads, and 79% and 95% respectively have access to paved and unpaved roads.

In terms of distance between markets, around 45% of households said that markets were less than 60 minutes from their community. Around 33% said that the markets were located 1 or 2 hours from their community, while around 15% of the sample said that the market was located within their community and 7% said they need 2 to 4 hours to get markets. As for the means used to get to the market, around 47% of households said they walked to the nearest food market, 25% used public transport, while the remaining households used other means of transport, including bicycles (3.39%) and cars (23.73%).

Looking at the access to market information, around 95% of the households in the sample said they had access to market information, while only 15% said they did not have access to price and market information. Most of the market information is obtained from local suppliers and traders (around 735 of respondents affirmation) and from agricultural extension services agents (15% of respondents responded). Of those who did have access, 95% confirmed that the information they received was useful for marketing their produce and obtaining agricultural inputs. The households were also invited to provide information on access to general services, such as access to credit, health and education facilities, electricity, and clean drinking water. 90% of households in the sample reported having access to health services around 97% of households reported having access to education services, and 88% to electricity. Only around 18%, 8%, and 5% of the respondents said they had access to clean drinking water, transport services, and microfinance and credit services respectively (Figure 3.12).

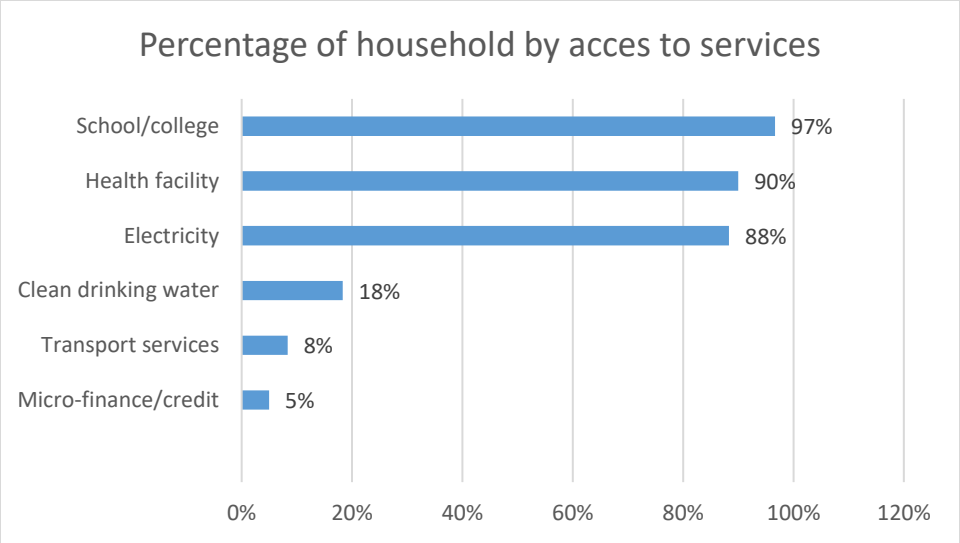


Figure 3.12 Percentage of household access to general service facilities.

3.10 Conclusion for Togo

To achieve the purpose of the baseline context for the second round of the RESADE project, a baseline survey has been conducted in four (4) villages namely Kouenou, Anyronkope, Djankasse, and Keta-Akoda in the Maritime region of Togo. In total 60 farmers were interviewed including 55 % (33 men respondents) of men farmers and 45% (27 women respondents) of women farmers. The average age of the respondents was around 47 years (the minimum age of the respondents was 18 years, and the maximum age was 82 years) in the household that was composed of a minimum of 2 persons and a maximum of 14 people with a majority of a group of young 15 years to 65 years old adults. It can be reported that around 62% of households are headed by males, while only about 38% are headed by females. The estimated average age of household heads is approximately 48 years old, with variations based on gender. Specifically, most male heads of households are married (around 90%), while only 5% of female heads are married. Based on the data gathered on the educational background of households, it shows that around 77% of all the sample including household members were literate. However, around 62% of surveyed households had heads who were able to read and write (literate). Among the household members of the sample that confirmed enrolment in formal education, only 34% of them had completed primary school, 39% secondary school, and 4% high school.

The average total annual income per household is estimated approximately at 327,986 FCFA. The average income from men and women are respectively 39,847.22 and 25,655.19 FCFA with both men and women contributing more considerably (311,834.5 FCFA). In terms of income source, among the targeted

population in the survey, farming is the main source of household income, contributing around 43% to total household income, followed by livestock (29%), trade (15%), and temporary employment (approximately 6%). Data on household asset ownership reported indicates that the most used assets are house ownership (44.21%), followed by car/track (15.79%), electricity generators (9.79%), computer/internet possession (5.64%), bikes or motorbikes (5.04%), Thresher (3.86%), TV and radio (2.37%), tractors (2.37%) and refrigerators (1.78%).

Agricultural holding and access to land data show that 51.49% of farmers rented out the land, 40.59% of the respondents owned the land, 6.93% shared the farmland to grow their products, and only around 1% leased the land for agricultural activities purposes. The total average size of land holdings is around 2.44 ha (of which 1.79 ha is cultivated and only 0.05 ha has left fallow). Most of the land cultivated by the household is rainfed, with irrigated land accounting for only a small proportion of the total. According to the soil type and fertility, about 38% of the farmers reported that the soil is sandy, while 22 think it is clay. Most of the people around 48% of households felt that the level of their farm soil fertility was average, 28% think that soil fertility is very poor and 18% feel it is poor in terms of crop yields or production. According to the data reported, among the respondent's cultivated products, it is found that maize (produced by 100% of farmers), cassava (68% of farmers), tomato (55% of farmers), mung bean (33% of farmers), and groundnut (15% of farmers) as the most prioritized staple food crops. On average, households consumed more pearl millet (average of 500 kg), maize (391 kg), cassava (253 kg), and mung bean (115 kg). The data of land allocated by crops show that the rainfed area is large compared to crops allocated to irrigation system area. Also, only 3 crop production including tomato, pepper, and watermelon occupied a large part of the irrigated lands. With 136.15 ha as the total land resulted from the data, the estimations of the land allocated to the main crops show that around 38% (51.85 ha) of cultivated land is devoted to maize production, followed by around 26% (35.75ha) of the land allocated to cassava production, 21% (28.4ha) to tomato production, 9% (11.65 ha) to mung bean production, and 3% (3.9 ha) of the total land is allocated groundnut production. Data on household ownership of livestock shows that the largest group of households have poultry (around 40%), while around 35% of households reported owning goats and 25% sheep.

Data on the access to agriculture extension services, around 25% of the households in the sample reported that they did not have access to extension services, while around 75% confirmed that they did have access to extension services. Also, around 64% of respondents said they did not have access to or were not members of farmer organizations, and only 36% of them said they were members of farmer organizations.

According to household member labor working on the farm, we found that approximately both men and women work 4 hours a day. The average total wage was estimated at just over 1,900 FCFA, with a proportional average wage for male workers at 1,608 FCF and female workers at 1,335 FCFA. The data on hired labor shows that around 83% of the households in the sample recruit labor from the market to carry out farm work at some time during the year, while only around 17% of the respondents do not hire. The average number of workers indicates that around 4 workers are hired on the market each month, working an average of 14 days a week. The average wage is estimated at 2900 FCFA. Therefore, almost 29% of the households reported that members of their household were engaged in non-agricultural work/off-farm income activities.

According to the farmer's interview reports, most farming households are suffering from natural disasters and the severity of these shocks was especially high for drought, planting new pests and diseases, increases in food prices, and decline in household income. In addition, soil salinity is another big issue faced by farmers that leads to an impact on soil fertility and crop losses. Almost 82% versus 18% of the households in the sample reported that soil salinity is a permanent problem in their villages and 40% versus 60% of respondents said that soil salinity has affected their farmland. Despite those challenges, almost all the respondents (56 farmers out of 60) claimed to not receive any training on salinity issues. To cope with salinity and other climatic disasters, it has been reported that some farmers use deep plowing, crop rotation, drainage or leaching, and soil amendment (i.e. application of Gypsum) strategies.

When respondents in the sample were asked to indicate the sectors in which women were involved, although more than 30% reported that both men and women were involved in farming and livestock activities, almost 40% of households stated that women were actively involved in agricultural activities. In terms of decision-making, about 95% of the respondents in the survey area stated that women are actively participating in farming activities decision-making in the study area as well as in decision-making related to household management (around 97% of the respondents affirm). Particularly, it has been found that most decisions relating to land management, the choice of cultivated crops, the purchase of tools and agricultural inputs, the number of hired laborers on the market, the sale of agricultural products, food, and non-food expenditures are taken jointly by both women and men.

The figures on food security show that the households in the sample have widely consumed maize (100% of respondents), rice (98%), oil/better (97%), vegetables (93%), beans and peas (88%), fruits (78%), and potatoes (73%) over the past seven days. In general, household demand for food is met both by their production and from local markets.

Concerning access to services, 95% of the respondents reported having access to within-community local markets, 98% reported having road access, and 79% and 95% respectively had access to paved and unpaved roads. In terms of distance between markets, around 45% of households said that markets were less than 60 minutes from their community. Around 33% said that the markets were located 1 or 2 hours from their community, while around 15% of the sample said that the market was located within their community and 7% said they need 2 to 4 hours to get markets. As for the means used to get to the market, around 47% of households said they walked to the nearest food market, 25% used public transport, while the remaining households used other means of transport, including bicycles (3.39%) and cars (23.73%). Looking at the access to market information, around 95% of the households in the sample said they had access to market information, while only 15% said they did not have access to price and market information. Most of the market information is obtained from local suppliers and traders (around 735 of respondents' affirmation) and agricultural extension services agents (15% of respondent's response).

In the analysis of the access to social facilities (market, education, health…), 90% of households in the sample reported having access to health services around 97% of households reported having access to education services, and 88% to electricity. Only around 18%, 8%, and 5% of the respondents said they had access to clean drinking water, transport services, and microfinance and credit services respectively.

In conclusion, regarding these results, farmers in Togo need extension services, capacity building, knowledge on soil salinity and management, and new agricultural management technologies to cope with natural phenomena like soil salinity as well as credit support to address climate-changing conditions and boost their productivity, food security, income, and living standards, which align with the RESADE project objectives.

4 Country: The Gambia

4.1 Country Profile

The Gambia (whose capital is Banjul) is one of the smallest countries in West Africa surrounded by the republic of Senegal, with an area of 11,300 km² and an estimated population of 2.7 million in 2022. The country is classified as one of the least developed countries in terms of socio-economic development, ranked 174th out of 189 countries in terms of HDI (2021) (FAO, 2023). Agriculture, forestry, and fishing together account for 23% of GDP in 2022, industry 20% and services 57% of GDP. Tourism alone accounts

for between 15% and 20% of GDP and is the largest source of formal employment in The Gambia. By 2020, agricultural land accounted for 59.8% of arable land, while forest area represented 24% (World Bank, 2023). Approximately 56% of the country's total surface area is considered suitable for agriculture and is used for cereal and groundnut production, as well as for grazing and fallow land (Sambou, 2016). Agricultural production employs 70% of the workforce, contributes around 40% of foreign exchange earnings, and generates around 75% of total household income. These analyses showed that the agricultural sector plays a major role in The Gambia's economy (FAO, 2023). Despite its primary role, agricultural production is underdeveloped, poorly mechanized, largely subsistence-based, and rain-fed, with steadily declining productivity among the main staple crops such as rice, sorghum, maize, groundnuts, and millet. However, the sector has faced and continues to deal with enormous challenges such as the consequences of climate change, threatening the livelihoods of the population and of those who really depend on the sector, and continuing to suffer from poverty, malnutrition, and related health problems.

Soil structures in The Gambia are generally poor and have deteriorated in recent years due to the reduction of natural forest cover and soil depletion caused by reduced fallow periods and cultivation of marginal land. However, lowland heavy alluvial soils have average fertility but are difficult to cultivate, while upland soils are predominantly marginal with a high salinity of sandy or sandy loam soil and very low fertility (Sambou, 2016). The country has a Sudano-Sahelian climate, characterized by two seasons. A long dry season from November to May and a short rainy season from June to October. Rainfall varies with weak precipitations from 850 mm to 1,200 mm per year, while average temperatures range from 18 to 30 C during the dry season and from 23 to 33 C during the rainy season (Sambou, 2016). In addition, the agriculture sector has been confronted with increasingly frequent adverse climatic events in recent decades, such as drought, reduced rainfall, and extreme temperatures, which have led to a decline in agricultural productivity in The Gambia. Another additional major challenge to Gambia's food and nutrition security is its dependence on food imports, which exposes the country's food system to external shocks. For example, over 80% of rice, one of the main staple foods in The Gambia, is imported and rural poor households face a period of food deficit of 4 to 6 months, generally during the rainy season. (IIASA, 2023; FAO, 2023). Yet agriculture is the key sector in terms of investments to guarantee sustainable food security and reduce poverty levels, as set out in the Sustainable Development Goals (SDGs). To achieve these goals, the agricultural sector must move from subsistence farming to market-driven economic enterprises. Hence, the RESADE project addressed these issues by implementing new climate-friendly agricultural technologies to overcome the various shocks and increase the productivity and welfare of The

Gambia's poor rural community in particular and the country as a whole in general. See the country profile economy indicators in the table below (Table 4.1).

Table 4.1 The Gambia-country profile

Indicators	Values
Population, total	2,705,992 (2022)
Population growth (annual %)	2.5 (2022)
GDP (current US$)	2.27 (2022 billion)
GDP per capita (current US$)	840.0 (2022)
GDP growth (annual %)	4.9 (2022)
Unemployment, total (% of total labor force) (modeled ILO estimate)	4.8 (2022)
Poverty headcount ratio at $2.15 a day (2017 PPP) (% of the population)	17.2 (2020)
Literacy rate, adult total (% of people ages 15 and above)	58 (2021)
Urban population (% of the total population)	64 (2022)
Total greenhouse gas emissions (kt of CO2 equivalent)	2,453 (2020)
CO2 emissions (metric tons per capita)	0.2 (2020)
Droughts, floods, extreme temperatures (% of population, average 1990-2009)	0.2 (2009)
Internally new displacement associated with disasters (number of cases)	7,000 (2022)
Forest area (% of land area)	24.0 (2020)
Agricultural land (% of land area)	59.8 (2020)
Crop production index (2014-2016 = 100)	59.7 (2021)
Livestock production index (2014-2016 = 100)	100.2 (2021)
Agriculture, forestry, and fishing, value added (% of GDP)	22.6 (2022)
Prevalence of severe food insecurity in the population (%)	27.1 (2020)

Source: World Development Indicators

4.2 Demography and Socioeconomic Characteristics of Respondents

In The Gambia, during the baseline survey, a total of 60 farmers were interviewed in 4 villages including Dasilami, Kuloro Tungina, Kembujeh, and Siffoe in the West coast region of the country. Looking at the frequency, the number of farmers was distributed fairly (15 respondents by village) among the villages covered by the survey (Table 4.2).

Table 4.2 Respondents' distribution by village

Villages name	Frequency	%	Cumulative
Dasilami	15	25	25
Kuloro Tungina	15	25	50
kembujeh	15	25	75
Siffoe	15	25	100
Total	60	100	-

The majority of the respondents (88%) reached during the survey were female farmers with an average age of 51 years, while only around 12% of the respondents were male farmers with an average age of 53 years. According to the reported data, none of the female respondents was heading a household, while most of them 97% were males who are heading a household. Furthermore, the estimated average age of male heads of household is 53 (Table 4.3). Marital status data showed that approximately 78% of the respondents were married, 3% were single, 2% were widows, and around 17%were engaged.

Table 4.3 Respondents characteristics

Gender	Respondent number			HH head information		
	Freq	%	Mean (age)	Freq	%	Mean (age)
Male	7	11.67 %	53.28	6	97%	52.66
Female	53	88.33 %	51.01	0	0%	-
Total	60	100%	51.28	6	10%	52.66

The household size regardless the gender is an average of 7 persons in a house with a minimum of 2 persons and a maximum of 16 persons per household. Regarding the groups of persons in a household by age and gender, household members aged 15 to 65 dominate household composition. Children and minor household members aged 14 and below represent the second largest demographic proportion in the household, while people aged 65 and over represent the smallest fraction in the household composition (Table 4.4).

Table 4.4 Household demographic composition

Household group information		Min	Max	Mean	Median	Std. Dev.
Household size		2.00	16.00	7.35	7.00	3.16
Male	14 years of age and below	0.00	3.00	1.22	1.00	0.87
	15 years of age to 65	0.00	8.00	2.10	2.00	1.35
	65 years of age and above	0.00	1.00	0.13	0.00	0.34
Female	14 years of age and below	0.00	4.00	1.07	1.00	1.02
	15 years of age to 65	0.00	7.00	2.48	2.00	1.49
	65 years of age and above	0.00	2.00	0.35	0.00	0.55

Based on the data gathered on the educational background of principal respondents, it shows that 45% were able to read and write (literate), while 55% were reported to be illiterate (cannot read and write). Among the household members of the sample that confirmed enrolment in formal education, only 31% of them had completed primary school, while more than 57% had completed secondary school, and only around 7% had high school (Table 4.5).

Table 4.5 Respondent education profile

Literacy rate household head			Formal Education/ Highest degree obtained in the household		
Level	Frequency	%	Schooling level	Frequency	%
Literate	27	45	Primary School	72	31.30
			Secondary School	132	57.39
Illiterate	33	55	High School	15	6.52
			Diploma	2	0.87
Total	60	100	Bachelors	1	0.43
			Others	8	3.48
			Total	230	100
			Average schooling (years)	9	-

The data analysis revealed that in terms of household income, the average annual income per household is estimated at approximately 48,161 Gambia Dalasi. The average income from men and women are respectively 63,532.73 and 16,259.3 Gambia Dalasi with both men and women contributing more considerably (57,294.74 Gambia Dalasi) (Table 4.6).

Table 4.6 Income distribution by gender

Variables	Min	Max	Mean	Std. Dev.	Total observations
Men income	2000	115,200	63,532.73	36,186.5	55
Women income	2000	75,000	16,259.3	16,691.67	43
Both	1000	180,000	57,294.74	54,093.79	38
Total income	1000	180,000	48,161.85	42,873.22	135

In terms of income source, among the targeted population in the survey, farming is the main source of household income, contributing around 44% to total household income, followed by other employment activities combined with agricultural activities. Only 4% of the respondent's income is also from livestock (Figure 4.1).

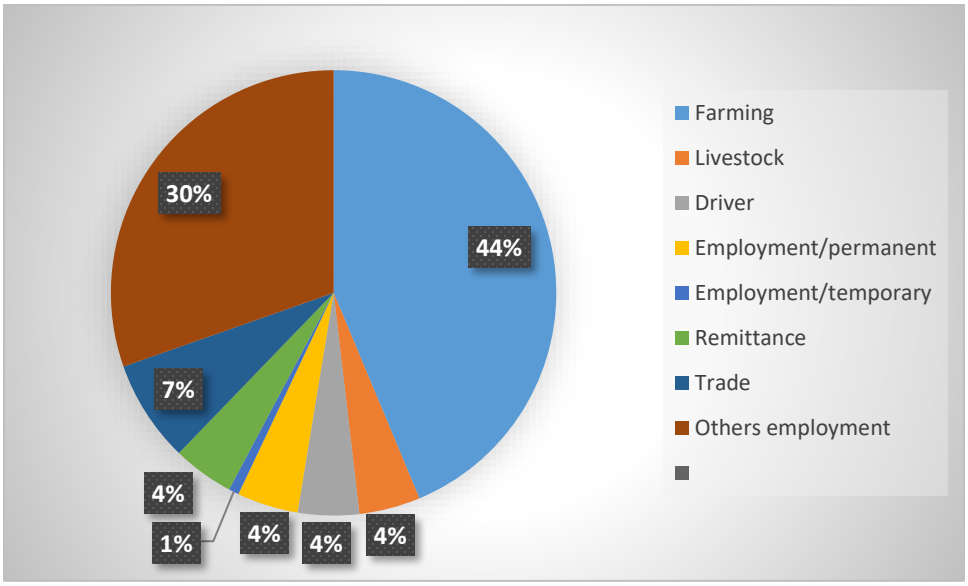


Figure 4.1 Household income sources

On the other hand, results in expenditure and decision-making of expenses related to food and non-food items acquisition revealed that most of the household income is spent on food items (average 8,483.33 Gambia Dalasi) than on non-food consumption (average 3,558.33 Gambia Dalasi). In addition, both males and females have a word to say in household expenditure decision-making. However, in food expenditure,

decision-making men are prioritized, while women are prioritized for non-food decision making and men have no words to say (Table 4.7).

Table 4.7 Decision-making by gender in consumption expenditures.

Decision maker	Food expenditure Freq (%)	Non-food expenditure Freq (%)
Men	35(58.33)	0(00.00)
Women	1 (1.67)	2(3.33)
Both	24(40.00)	58(96.67)
Total	60(100)	60(100)

Data on household asset ownership shows that the most used assets are houses (100%), agricultural tools (95%), mobile phones (92%), kitchen utensils (83%), television and radio (75%), refrigerators (54%), and bicycles or motorbikes (32%). Although many assets are collectively owned by both genders, women are more likely to own refrigerators, mobile phones, and TV/radio, while men are more likely to be owners of houses, TV/radio, farming tools, bikes, and mobile phones (Figure 4.2).

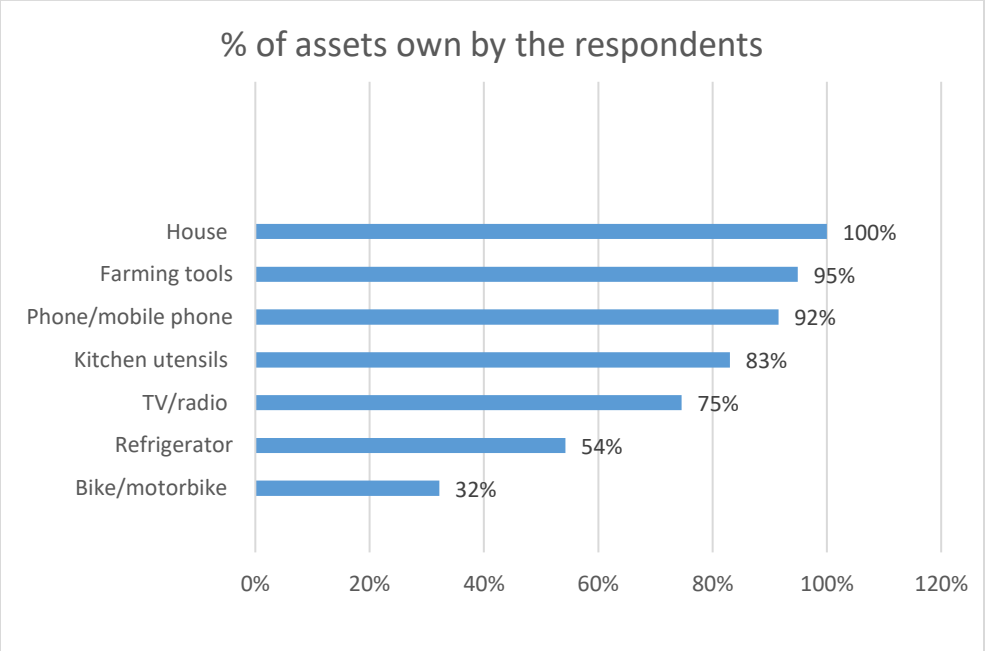


Figure 4.2 Household percentage of asset ownership.

4.3 Land ownership and agricultural production.

Land ownership represents the type of land holding or access to land. Farmers may have their land or lease and share land where they pursue their farming activities. The data collected show that for all the respondents 100% of the land where the farmers operate is their possession. It is found that 51.67% of the respondents practice rainfed agriculture, only 8.33% use irrigation while 405 of them combine the two types of systems. However, the average size of the land held by the farmers is 1.61 hectares of which only around 0.4 hectares are found to be irrigated, while the rest are under rainfed cropping. Meaning that most of the land operated by the household was reported to be rainfed, while irrigated systems used farmland comprised a small fraction of the total land (Figure 4.3). Paradoxically, however, 80% of the respondents claim to have access to irrigation systems, especially localized irrigation systems.

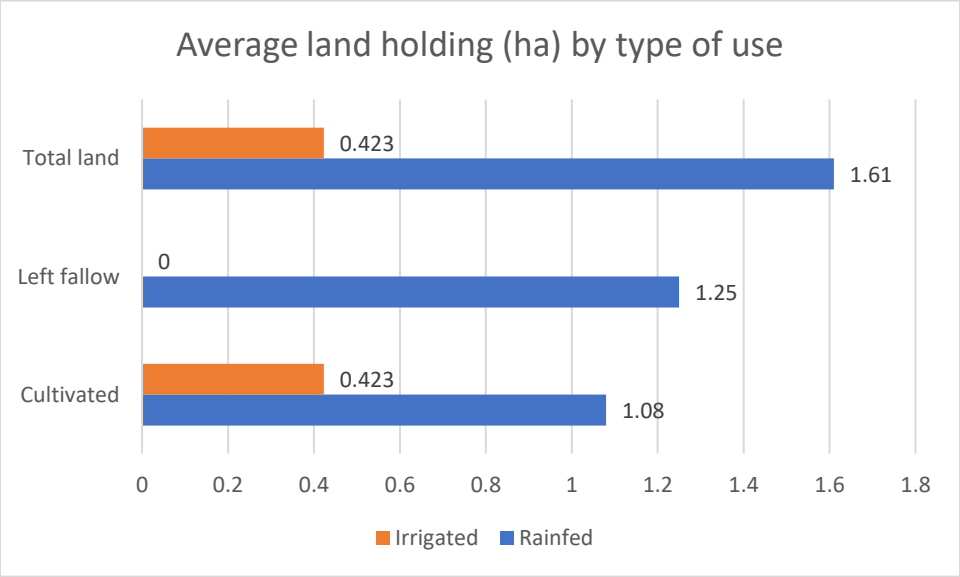


Figure 4.3 Landholding by the type of use.

The respondents have also reported their operated soil type and the rate of soil fertility according to crop productivity. The results show that 60% of the soil was reported to be loam, 17% clay, and 18% sandy soil. On the other hand, 25% of the households have rated the soil fertility level to be poor and 43% think the soil fertility is on average potential productivity, while 32 % of the respondents feel that the fertility of their land is at a good level of fertility (Table 4.8).

Table 4.8 Soil type and soil fertility in the study area

Soil type				Soil fertility			
Type	Frequency	%	Cumulative	Fertility level	Frequency	%	cumulative
Clay	10	16.67	16.67	Average	26	43.33	43.33
Clay/Sandy	3	5.00	21.67	Good	19	31.67	75.00
				Poor	15	25.00	100
Loam	36	60.00	81.67	Total	60	100	
Sandy	11	18.33	100				
Total	60	100					

According to the data reported, 46% of the respondents are cultivating rice, which dominates the portfolio of production in this area. Rice is followed by onion production (21% of farmers), tomato (15% of farmers), okra (6% of respondents), maize (only 2% of respondents), and other products production including cabbage, eggplant, bitter tomato and groundnut with low production percentages (Figure 4.4).

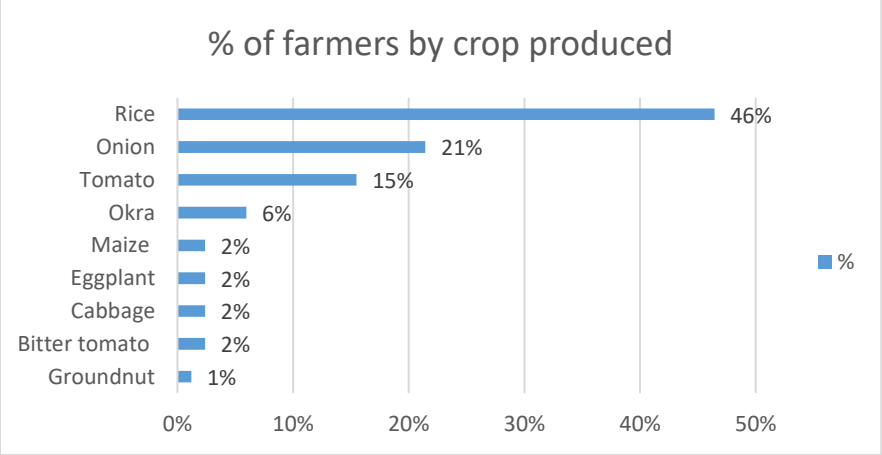
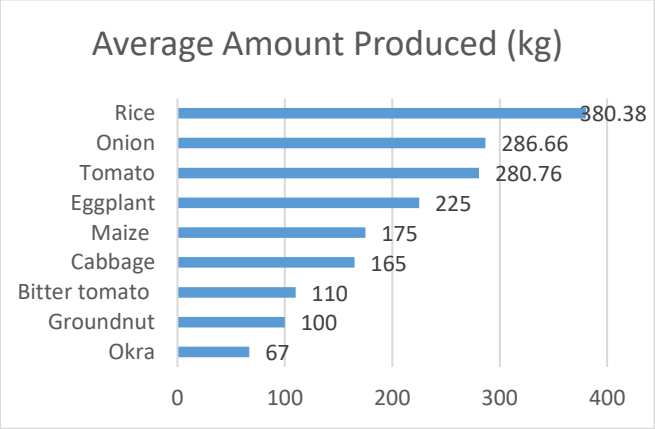


Figure 4.4 Percentage of farmers by crop cultivated.

Among the highest crops 'yield harvested, the average production value for rice is estimated to be 380 kg per household, 286kg for onion, 281kg for tomato, 225kg for eggplant, and 175 kg is maize average quantity production by households. As the household's staple foods, on average, households consumed more rice (estimated at 374 kg), and maize (estimated at 147 kg). Moreover, by comparing the quantities

of staple crops produced, and consumed, the results can be concluded by the fact that maize and rice are the most produced and consumed in the targeted villages (Figure 4.5). In terms of productivity lost after harvesting, the data also confirms that the greatest post-harvest losses are especially related to vegetables such as tomatoes, and onion. Therefore, onion, eggplant, maize, and okra are the products most sold by households (Figure 4.6).



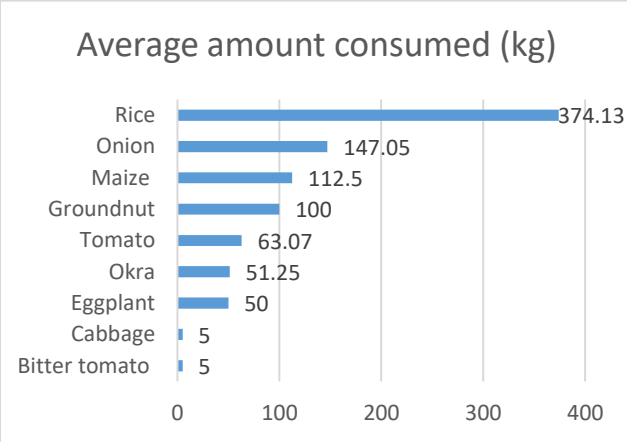
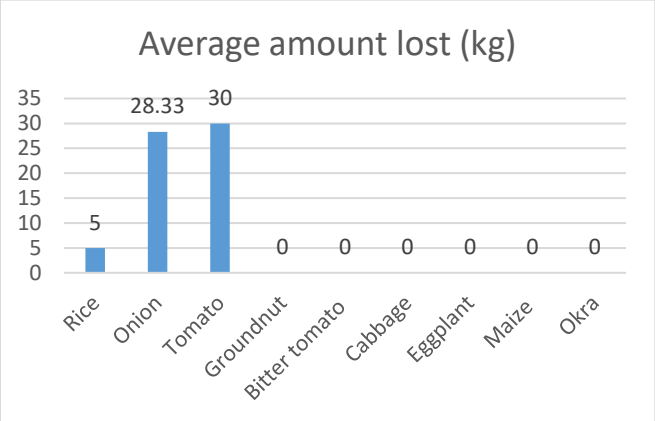


Figure 4.5 The average quantity of crops produced, and consumed by the respondents



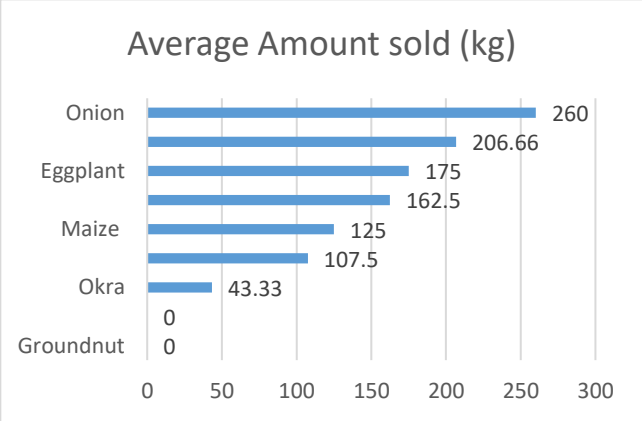


Figure 4.6 The average quantity of crops lost and sold by the respondents

The data on land allocated by crops show that the irrigated area is large compared to crops allocated to the rainfed system area. Especially, vegetables including onion, tomato, cabbage, okra, and eggplants

have large areas that have been irrigated. Conversely, rice and maize cultivation are related to rainfall (Figure 4.7).

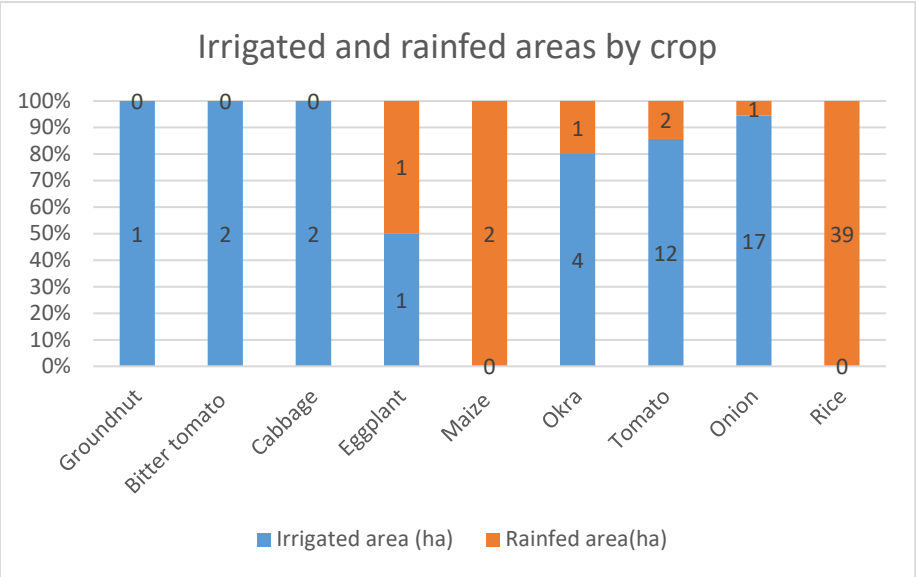


Figure 4.7 Land allocated to the type of water used by crop

The estimations of the land allocated to the main crops show that a large part of the area is allocated to rice, onion, tomato, and eggplant production (Figure 4.8).

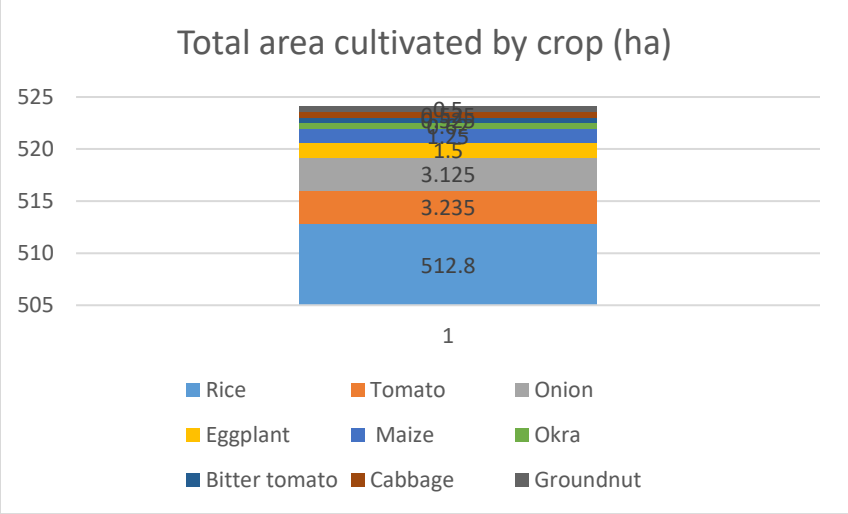


Figure 4.8 Total area allocated by crop.

Data on household ownership of livestock shows that the largest group of households have poultry (around 44%), while around 33% of households reported owning goats and 12% sheep. In total, a minimum of 2 chickens and a maximum of 55 (with an average of 25 animals by household), a minimum of 1 goat and a maximum of 27 (with an average of 6 animals owned by a household), and a minimum of 1 and 11 sheep (an average of 4 animal head) are owned by the household. However, we did not get information on households reporting owning other animals, such as beef, and cows (Table 4.9).

Table 4.9 Distribution of animals owned by respondents.

Livestock	Freq	%	Cumulative	Min	Max	Mean
Chickens	42	44.21	44.21	2	55	24.66
Donkey	2	2.11	46.32	1	1	1
Goat	31	32.63	78.95	1	27	5.77
Sheep	11	11.58	90.53	1	11	4.18
Missing	9	9.47	100			
Total	95	100	-			

4.4 Cooperative Membership and Access to Extension Services

Farmers being part of a cooperative is an important initiative to help them grow in their farming activities. However, in the framework of this study, when farmers were asked about membership in a farm cooperative/organization, at least the haft of the respondent around 53% affirmed that they are members of different farmer cooperatives, while only about 47 % declared having no membership to a farm organization (Table 4.10). Besides the cooperative membership, the Results on the extension services access show that most of the farmers in The Gambia have access to extension services visits and their help with advice on pest and crop management and other services.

Table 4.10 Organization membership

Farm cooperative membership	Frequency	Percentage	Cumulative
Yes	32	53.33	53.33
No	28	46.67	100
Total	60	100	-

4.5 Labor Involved in Farming Activities

On average, 2 workers (household members more than 15 years old) are involved in agricultural activities. However, more men than women are involved in farming activities. In addition, men work more hours and days than women. Because of missing values, the wages are not reported. The average working days per month is 4 days for an average of 2 hours per day. Men respondents are found to work 5 days per month for 5 hours per day, while women are found to work on average 7 days per month for 4 hours per day (Table 4.11).

Table 4.11 Involvement of laborers in the farming activities

Gender	Variables	Mean	Sd. Dev	Min	Max	Numb of observation
Male	Avg no. of laborers (month)	6.62	6.43	2	20	8
	Avg. days worked. (days/month)	5.12	4.35	1	11	8
	Avg hours worked (hours/day)	5	1.15	4	6	4
	Wage (LCU/day)	-	-	-	-	-
Female	Avg no. of laborers (month)	2.90	3.26	1	16	331
	Avg. days worked (days/month)	7.31	5.38	1	25	328
	Avg hours worked (hours/day)	4.25	.70	3	7	275
	Wage (LCU/day)	-	-	-	-	0
Both	Avg no. of laborers (month)	1.41	2.77	0	20	720
	Avg. days worked (days/month)	3.38	5.15	0	25	720
	Avg hours worked (hours/day)	1.65	2.12	0	7	720
	Wage (LCU/day)	-	-	-	-	-

In addition, the data on hired labor shows that around 40% versus 60% of the respondents affirmed hiring labor outside the household to help at some point during the farming season, while about more than 86% of them reported that their household members are doing off-farm jobs especially most of them on a part-time basis. The average number of workers indicates that around 4 workers are hired on the market each month, working an average of 3 days a month and 4 hours a day. The average wage is estimated at 800 Gambian Dalasi (Table 4.12).

Table 4.12 Average number of laborers hired by the households.

Variables	Mean	Sd.Dev.	Min	Max	Observation
Total hired labor (month)	3.70	2.89	1	15	24
Hired labor days (month)	3.04	0.80	1	5	24
Hired labor hours (hours/day)	4	0	4	4	24
Hired labor wage (LUC/day)	800	475.71	150	2250	24

4.6 Natural Disasters and Soil Salinity Issues

The results of the baseline survey showed that unusual increases in food prices aftershocks, drought, unusual decline in household income, unusual decreases in farmgate prices, crop pests and plant new disease outbreaks, insecurity, flood, deaths of family members, and some extreme weather conditions are the most common shocks and natural disasters faced and reported by the smallholder farmers households. The data analysis revealed that the severity of these shocks was especially high for new pests and diseases, food price increases, and an increase in soil and water salinity (Figure 4.9).

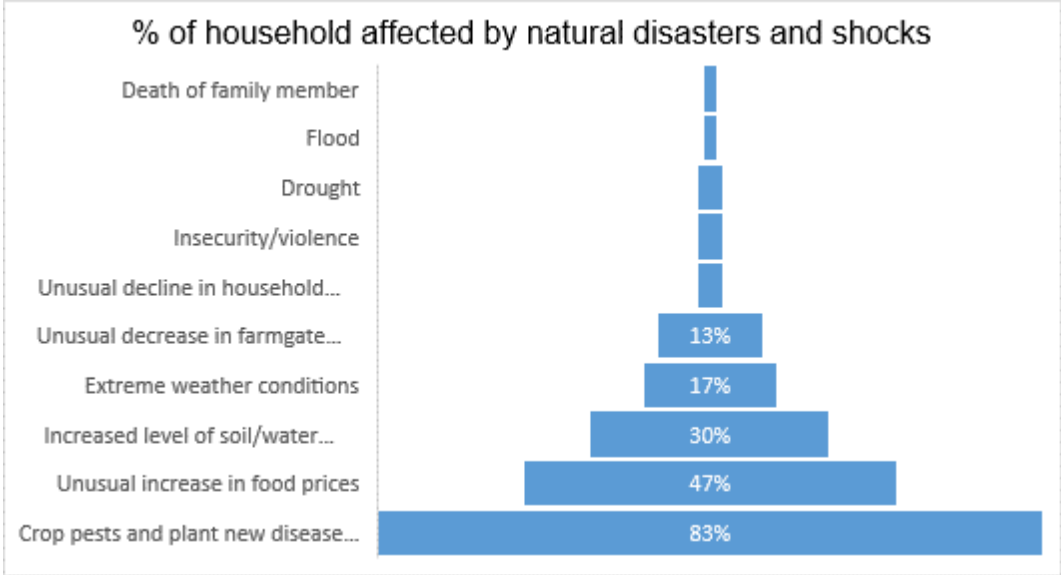


Figure 4.9 Percentage of households affected by a natural disaster and shock

As the RESADE project aims to deal with soil salinity issues and improve farm productivity, some data was also collected about the soil salinity in the survey conducted areas. According to the baseline survey, in The Gambia project second round areas, all the respondents 100% in the sample reported that soil salinity

is a permanent problem in their villages that has affected their farmland. Also, 85% reported that soil salinity is a common problem in irrigated areas, and only 15% of them reported it is common in rainfed areas. This soil salinity problem directly affects agriculture productivity and leads to yield losses and income decline. Despite those challenges, all 60 respondents claimed to not receive any training on salinity issues. While asking farmers how they recognize the soil salinity symptoms, low infiltration of water (45% of respondents), soil compactness (63.33% of respondents), white crust on the surface of the soil (75% of farmers), and dark brown color of the soil (26.67% of farmers) were reported by about the households in the sample as the most common symptoms of salt-affected soil (Table 4.13). However, when asking about the severity of the impact of salinity, we found that the impact varied from one farm soil to another. Most of the respondents (53.33%) reported a high level of salinity in their land, resulting in a 75-100% yield loss of more than 50% of respondents (30 farmers). Only around 46.67% of them reported that their land was affected by salinity at a medium level, resulting in a 25-50% yield loss of 46% of respondents (28 farmers). Nonetheless, no respondents reported low severity of salinity on their soil.

Table 4.13 Soil salinity severity respondent contributions

Salinity severity	Frequency	Percentage
Medium	28	46.67%
High	32	53.33%
Total	60	100

In addition, farmers were also asked to define the causes of soil salinity. The reported data shows that more than 30% of the farmers indicated that salinity is related to natural causes. Around 12%, 6%, 3%, and 2% indicated that soil salinity is the result of climatic conditions, lack of drainage system, land leveling problems, and the salinization of irrigation water respectively as the main cause of salinization (4.14).

Table 4.14 Cause of salinity per farmers' responses

Salinity cause	Frequency of respondent	Percentage
Climatic conditions	12	22.64%
Irrigation water is salty	2	3.77%
Lack of drainage system	6	11.32%
Land leveling problem	3	5.66%
Parent material (natural cause)	30	56.60
Observation	53	100%

4.7 Gender and Women's Involvement in Agricultural Activities

Women's involvement is an important aspect of household and farm management. However, according to the survey, about 58% of the respondents in the survey area stated that women are actively participating in farming activities in the Gambia as well as in decision-making related to household management (100% of the respondent's affirmation) (Table 4.15).

Table 4.15 Women's involvement in decision-making.

Women's involvement in decisions making	Yes		No		Total
	Freq.	%	Freq.	%	
Household decision	60	100%	0	0%	60
Farm activity decision	58	97.6%	2	3.33%	60

According to the results comparing men and women decision making, it has been found that most decisions relating to land management, the choice of cultivated crops, the purchase of tools and agricultural inputs, the number of hired laborers on the market, the sale of agricultural products, food, and non-food expenditures are taken jointly by both women and men. In addition, although the majority of decisions are made jointly by men and women, it can be related that a significant number of households reported that men are more prioritized in decision-making, particularly for input use, and crop selling (Table 4.16).

Table 4.16 Percentage of gender decisions by items expenditures.

Gender	Decision making/ Freq (%)								
	Land access	Crop to grow	Inputs use	Farm tools	Hire labor	Crop selling	Income spends	Food expense	Nonfood expense.
Men	0 (00.00)	0 (00.00)	2 (3.33)	0 (00.00)	3 (00.00)	7 (11.66)	0 (00.00)	35 (58.33)	0 (00.00)
Women	0 (00.00)	0 (00.00)	0 (00.00)	0 (00.00)	0 (00.00)	0 (00.00)	0 (00.00)	1 (1.67)	2 (3.33)
Both	60 (100)	60 (100)	58 (96.66)	60 (100)	57 (95)	53 (88.33)	60 (100)	24 (40.00)	58 (96.67)
Obs.	60	60	60	60	60	60	60	60	60

4.8 Food Consumption and Nutrition

Data was collected on household food consumption and the types of food consumed to assess the food security situation of the target rural households. The aim was to identify the main staple foods, determine whether households had enough to consume throughout the year and whether households depended on the market or their food production. The figures on food consumption show that the households in the sample have widely consumed rice (98% of respondents), vegetables (93%), poultry and eggs (60%), wheat (58%), fruit (57%), meat (53%), maize (32%), cassava (30%), and potatoes (28%) over the past seven days. This indicates that these products are part of important components of household food consumption/diets and play a vital role in their food security (Figure 4.10). Also, in general, household demand for food is met both by their production and from local markets. More than 70% of their food demand seems to be met by the market while only 19% is met by their own products.

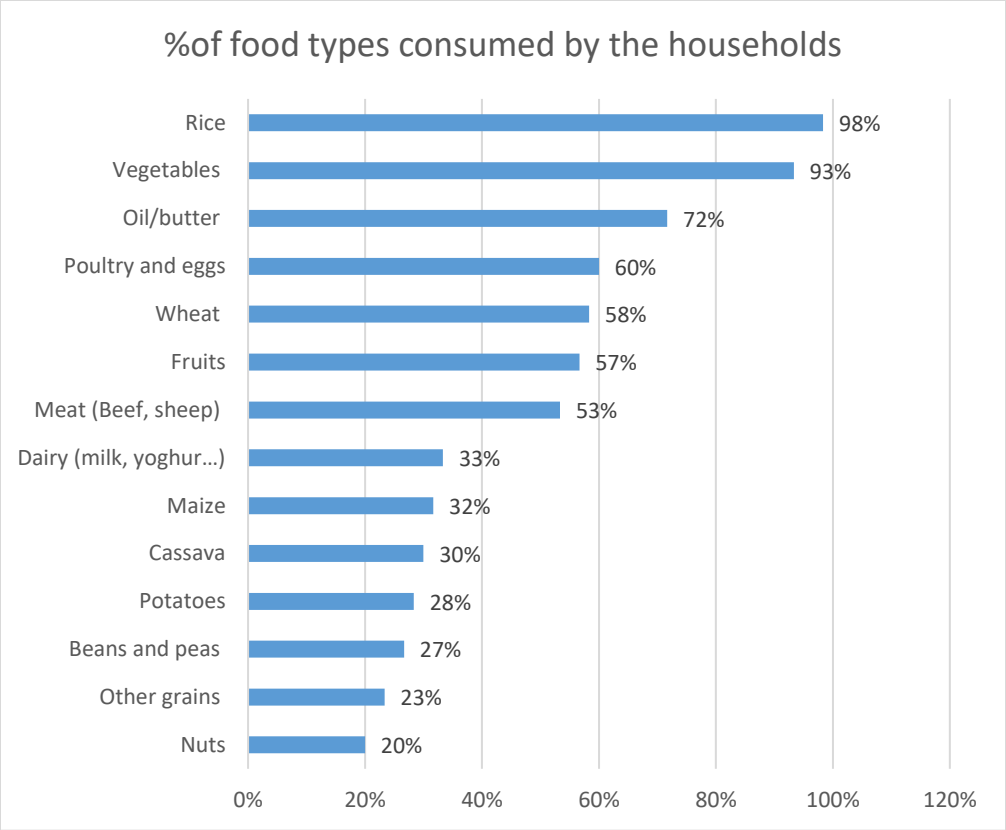


Figure 4.10 Percentage of food types consumed by the households.

4.9 Access to Infrastructure and Services

This section of the survey analyses the information on household access to infrastructure and services, including road and market access, access to drinking water, agricultural credit, and health and education facilities. The results show that all the respondents claim to have access to the market and nearest roads whether it is paved or unpaved between 5 minutes to 1 hour, and they can reach the market by walking.

Looking at the access to market information, all the respondents declared having access to market information, while only 37% declared to have access to useful information. dents responded). The households were also invited to provide information on access to general services, such as access to credit, health and education facilities, electricity, and clean drinking water. 100% of households in the sample reported having access to health services, education services, and clean water. 98% have access to electricity and transport facilities. Nonetheless, none of the respondents have access to microfinance and credit services (Figure 4.11).

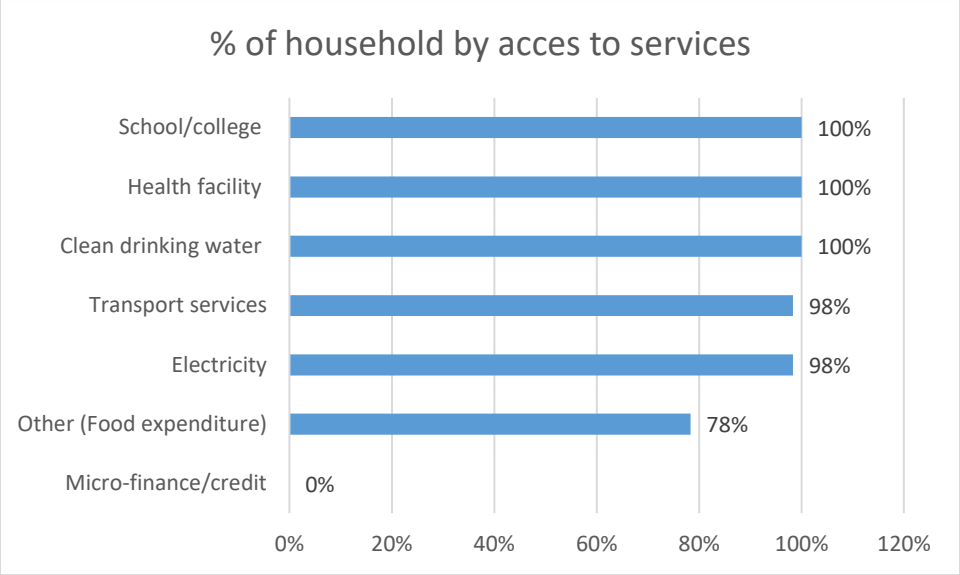


Figure 4.11 Percentage of household access to general service facilities.

Conclusion for The Gambia

The second round of the baseline survey in order to establish a second-best practices hub in the Gambia was conducted in 4 villages including Dasilami, Kuloro Tungina, Kembujeh, and Siffoe in the West coast region of the country. In total 60 farmers were interviewed including 88.33% of women farmers with an average age of 51 years, and 11.67 % of men farmers with an average age of 53 years. Among the respondents, 97% were males heading a household. Marital status data showed that approximately 78% of the respondents were married, 3% were single, 2% were widows, and around 17%were engaged. The household size was an average of 7 persons in a house with a dominant of household members aged from 15 to 65 years old. It is shown that 45% were able to read and write (literate), while 55% were reported to be illiterate (cannot read and write). Among the household members of the sample that confirmed enrolment in formal education, only 31% of them had completed primary school, while more than 57% had completed secondary school, and only around 7% had high school. Farming is the largest source of household income, accounting for 44% of total household income, followed by other employment activities combined with agricultural activities. Only 4% of the respondent's income is also from livestock.

Looking at gender involvement, 100% of the respondents in the survey area stated that women are actively participating in farming activities in the Gambia as well as in decision-making related to household

management. The respondents also state that both men and women are involved in food and non-food expenditure decision-making as well as other decisions making including farm input acquisition, crop to grow, crop to sell, and technology adoption. The results show that 60% of the soil was reported to be loam, 17% clay, and 18% sandy soil. On the other hand, 25% of the households have rated the soil fertility level to be poor and 43% think the soil fertility is on average potential productivity, while 32 % of the respondents feel that the fertility of their land is at a good level of fertility. The data collected show that for all the respondents 100% of the land where the farmers operate is their possession. It is found that 51.67% of the respondents practice rainfed agriculture, only 8.33% use irrigation while 405 of them combine the two types of systems. However, the average size of the land held by the farmers is 1.61 hectares of which only around 0.4 hectares are found to be irrigated, while the rest are under rainfed cropping. According to the data reported, 46% of the respondents are cultivating rice, which dominates the portfolio of production in this area. Rice is followed by onion production (21% of farmers), tomato (15% of farmers), okra (6% of respondents), and maize (only 2% of respondents). Their consumed food is covered by both the market acquisition and their own products.

Among the respondents, around 53% affirmed that they are members of different farmer cooperatives, while only about 47 % declared having no membership in a farm organization. Besides the cooperative membership, the Results on the extension services access show that most of the farmers in The Gambia have access to extension services visits and help. Therefore, most farming households are suffering from natural disasters and shocks. The data analysis revealed that the severity of these shocks was especially high for new pests and diseases, food price increases, and an increase in soil and water salinity.

According to the baseline survey, in The Gambia project second round areas, all the respondents 100% in the sample reported that soil salinity is a permanent problem in their villages that has affected their farmland. Also, 85% reported that soil salinity is a common problem in irrigated areas, and only 15% of them reported it is common in rainfed areas. This soil salinity problem directly affects agriculture productivity and leads to yield losses and income decline. Despite those challenges, all 60 respondents claimed to not receive any training on salinity issues. While asking farmers how they recognize the soil salinity symptoms, low infiltration of water (45% of respondents), soil compactness (63.33% of respondents), white crust on the surface of the soil (75% of farmers), and dark brown color of the soil (26.67% of farmers) were reported by about the households in the sample as the most common symptoms of salt-affected soil. However, when asking about the severity of the impact of salinity, we found that the impact varied from one farm soil to another. Most of the respondents (53.33%) reported a high level of

salinity in their land, resulting in a 75-100% yield loss of more than 50% of respondents (30 farmers). Only around 46.67% of them reported that their land was affected by salinity at a medium level, resulting in a 25-50% yield loss of 46% of respondents (28 farmers). Nonetheless, no respondents reported low severity of salinity on their soil.

The analyses on food consumption show that the households in the sample have widely consumed rice (98% of respondents), vegetables (93%), poultry and eggs (60%), wheat (58%), fruit (57%), meat (53%), maize (32%), cassava (30%), and potatoes (28%) over the past seven days. This indicates that these products are part of important components of household food consumption/diets and play a vital role in their food security (Figure 3.11). Also, in general, household demand for food is met both by their production and from local markets. More than 70% of their food demand seems to be met by the market while only 19% is met by their own products.

Regarding all the above results, farmers in The Gambia need training, awareness knowledge on soil salinization. New agricultural management technologies as well as credit support to address soil salinity and climate change impacts and boost their productivity, food security, income, and living standards are needed. Thus, the objectives of the RESADE project are to reach and help more farmers by establishing a second hub practice in the Gambia and boosting the agricultural sector and farmers' well-being.

References

CIA the World Factbook, https://www.cia.gov/the-world-factbook/

Nationally Determined Contributions to the UNFCCC. Togo (2016). URL: https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Togo%20First/INDC%20Togo_english%20version.pdf

Tchinguilou et al. (2013). West African Agriculture and Climate Change: A Comprehensive Analysis — Togo

Third National Communication to the UNFCCC. Togo (2015). URL: https://unfccc.int/sites/default/files/resource/tgonc3.pdf 58

Tossou .(2015). Understanding farmers' perceptions of and adaptations to climate change and variability: the case of the maritime, plateau and savannah regions of Togo. Agricultural Sciences, 6, 1441–1454

UNDP. (2018). Country study — Togo. Strengthening of National Capacities for National Development Strategies and Their Management: An Evaluation of UNDP's Contribution.

World Bank. (2023). Climate knowledge portal. https://climateknowledgeportal.worldbank.org/country/togo/climate-data-historical

World Bank. (2023). World Development Indicators, The World Bank Group, 2023. https://data.worldbank.org/country/TG https://climatepromise.undp.org/what-we-do/where-we-work/togo

FAO. (2023). The Gambia as a glance. https://www.fao.org/gambia/gambia-at-a-glance/en/

Sambou Lamin Kinteh. (2016). The Gambia AGRICULTURE AND NATURAL RESOURCES (ANR) POLICY (2017 – 2026). Semi Final Draft Report