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A STUDY ON FOOD SECURITY IN TWANTAY TOWNSHIP, YANGON REGION

THIDA THAN
EMPA – 69 (18th BATCH)

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A STUDY ON FOOD SECURITY IN TWANTAY TOWNSHIP, YANGON REGION

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Public Administration (MPA)

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This is to certify that this thesis entitled "**A STUDY ON FOOD SECURITY IN TWANTAY TOWNSHIP, YANGON REGION**", submitted in partial fulfilment towards the requirements for the degree of Executive Master of Public Administration (EMPA) has been accepted by the Board of Examiners.

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ABSTRACT

Food security in developing countries is of utmost importance. The objectives of the study are to study the socio-economic characteristics of farming households in the study area and to assess the factors that determine households' food security in the study area. Data were collected on four main dimensions are namely food availability, food access, food utilization, and food stability and households' food consumption situation. Data were analyzed using descriptive statistics, and frequency analysis. A total of 200 farming households from Twantay Township selected as a sample by using a simple random sampling method. According to findings, the agriculture is the main occupation of the households. Only a small percentage of households run small or home enterprises; most operate side businesses like raising livestock business. The majority of households with working members are in the farming and livestock together. Food security is possible and sustainable where livelihoods are stable. Farmers' households struggle to continually have adequate food and nourishment due to the issues influencing food security, which is unsustainable for their future livelihoods. Food can be self-produced at home or bought from nearby markets. Crops must be grown in order to produce food, which requires water resources. Out of the four factors, food accessibility had the highest mean score. Food accessibility comes in second. For food stability, the mean score is the second-lowest. The study recommended that Ministry of Agriculture and Irrigation needs to support sustainable increase in rice production primarily through productivity-driven growth to reduce per unit cost of production and help obtain price stabilization. Finally, the government must assist food and agriculture through a number of measures, including financial subsidies to farmers and consumers, market and trade interventions including customs checks and price control, and general support for agricultural cultivation. The government should promulgate policy which will affect the food environment, the availability of healthy diets, and their cost, have an effect on all stakeholders.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

ASR	Automatic Speech Recognition
DOH	Department of Public Health
FAO	Food and Agricultural Organization
GDP	Gross Domestic Product
GOM	Government of Myanmar
LCD	Least Developed Countries
MOALI	Ministry of Agriculture and Irrigation
MOLFRD	Ministry of Livestock, Fisheries and Rural Development
MADB	Myanmar Agricultural Development Bank
SDG	Sustainable Development Goal
USDA	United States Department of Agriculture
WHO	World Health Organization

CHAPTER I
INTRODUCTION

1.1 Rationale of the Study

The global food security situation is unbalanced in the face of excess food production and the prevalence of hunger is complicated interaction with social, economic, and ecological factors. Some of the unimaginable issues that humanity has never faced before include a growing population and rising wages with the dietary transition that results from millions of individuals moving into the middle class. During the past 50 years of agricultural production indicates that the global population growth pattern comparison to the result of increased cultivated area, and also agricultural production has increased in proportion to the population. Currently, 13% of people who live in developing countries suffer from food insecurity. Thus, 98% of the world's population lives in poor nations and suffers food insecurity and malnutrition. Since a significant percentage of these people living in rural areas, food security of farming households is maximizing food insecurity. Nowadays, food insecurity is a challenge in rural regions for the number of reasons, including rapid population increase, poor agricultural productivity, and a lack of sustainable food security policy, macroeconomic instability, political stability, difficult market access, inflation and significant changes in agricultural prices. The critical nature of food security in rural communities has elevated it to a top priority in worldwide policy discussions. Furthermore, a fundamental obstacle is recognizing national policy and public concerns. Therefore, one of the main responsibilities of government in every nation is to provide ensuring villagers' food security, which is a requirement for national security (Ahmadi Dehrashid et al., 2021). People's lives and social stability are significantly impacted by the issue of food security. Local and regional security can be enhanced by defining the many aspects of food security and the factors (social, economic, agricultural, and climatic) that affect it. People's wellbeing and food security are closely related. The national peace and stability are a necessary condition for the economic development of a nation (Lv et al., 2022).

The biggest challenge, in the LDCs, is increasing people's basic needs and well-being or reducing hunger, malnutrition, and poverty from the world. In order to fulfill the most fundamental human right, food security has been acknowledged as a challenge and given top emphasis in all emerging nations. Even though the number of undernourished individuals has decreased in certain developing nations, the present global food crisis brought on by increasing prices for basic foods and decreasing food supplies has an impact on how easily poor people may acquire food in many of these nations. The worst affected by the increasing food prices are the poor urban food consumers, rural net food consumers, and non-food producers who spend a considerable portion of their income on food (Kyaw, 2009).

Myanmar is a nation with a low-middle income and a growing economy, with the apparel, oil and gas, gemstone, infrastructure, and tourism sectors dominating. The trafficking in illegal drugs is likewise significant8. About 42% of GDP is made up by the service sector, 36% by industry, and 22% by agriculture. The nation also exports raw minerals, natural gas, and garments and textiles. China is Myanmar's top trading partner, accounting for 31% of exports and 34% of imports in 2019. Thailand and Singapore were the next two largest trading partners in terms of volume in 2019. Similar to Singapore, the largest foreign investor, Hong Kong accounted for 26% of permitted investment in the previous year. As a result, the majority of foreign investment in Myanmar comes from the area. According to the World Bank, Hong Kong accounted for 26% of approved investment in the previous year, closely following Singapore, the largest foreign investor, with 34%. In a similar vein, the majority of foreign investment in Myanmar comes from the neighborhood(OCHA, 2021).

Myanmar has a policy of fostering food and nutrition security, and the amount of food produced nationally exceeds what is needed to meet the needs of the population. Nevertheless, despite economic development and national food self-sufficiency, food and nutrition surveillance has shown that malnutrition still occurs throughout the nation. Household food and nutrition security was given priority in the 1995-adopted National Plan of Action for Food and Nutrition. In 1996, the National Nutrition Centre started a study of household food and nutrition security in Myanmar in collaboration with the World Health Organization (WHO) (Thwin, 2001). According to a preliminary analysis of the issue, people's lifestyles, behaviors, and daily routines have significantly changed transitional changes in the social, economic,

and demographic factors, and these changes have an impact on the security of their access to food and nourishment. The current study investigates the four dimensions that influence food security issues within and farmers' households in Twantay Township.

1.2 Objectives of the Study

The objectives of the study are;

- To study the socio-economic characteristics of farming households in the study area;
- To access the food security with four dimensions in the study area.

1.3 Method of Study

The data for this study were analyzed using descriptive statistics and the data was obtained from primary sources through a structured questionnaire. Data were collected on four main dimensions as well as food availability, food access, food utilization, and food stability and households' food consumption situation. Data were analyzed using descriptive statistics, and frequency analysis. The secondary data were collected from published articles, journals, books, and internet websites and from the Ministry of Agriculture and Livestock. The respondents were questioned using a structured questionnaire and the entire data set gathered through the use of questionnaires was analyzed using the Statistical Package for the Social Sciences (SPSS-23) program. A five-point Likert scale was used to measure the data in terms of determining the household food security level. In Twantay Township, there were 64917 households and 200 farming households were chosen at random to represent the sample. The period of data collecting was November 2022.

1.4 Scope and Limitation of the Study

The study area is only Twantay Township in the Yangon Region. The scope focused on only framing household members and farmers for their food consumption in a week and the dimensions of food security were involved. This study simply focuses on Twantay Township in order to access the agricultural households' food security. The results did not show how food security can do the consumption and production of the whole country. The study was determined merely to study the

condition of the local economy and the support for farming households in the Yangon Region.

1.5 Organization of the Study

This study is included with five chapters. Chapter I comprises that the rationale of the study, objectives of the study, method of study, scope and limitations of the study and organization of the study. Chapter II involves a literature review of the literature relating to the research such as the concept of food security, the context of this study and review on previous studies. Continuously, Chapter III involves overview of food security in Myanmar, the challenges of Food security in Myanmar. Chapter IV consists of the survey profile, survey design and survey results with the interpretation of the research. Lastly, Chapter V presents about the conclusion in which findings and recommendations of the study.

CHAPTER II
LITERATURE REVIEW

2.1 The Concept of Food Security

According to World Food Summit in 2002, the participants are defined that "food security is said to exist when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life". This definition recognizes the key food security concepts of food availability, access, stability and utilization. It is well acknowledged that there are two distinct time dimensions in which food insecurity might exist. Acute food insecurity typically results from a crisis or shock, is relatively short-lived, and often requires immediate care to ensure lives and livelihoods. Chronic food insecurity is a long-term challenge that is typically associated with poverty and requires on development efforts that are effectively focused on creating sustainable livelihoods(Information et al., 2011).

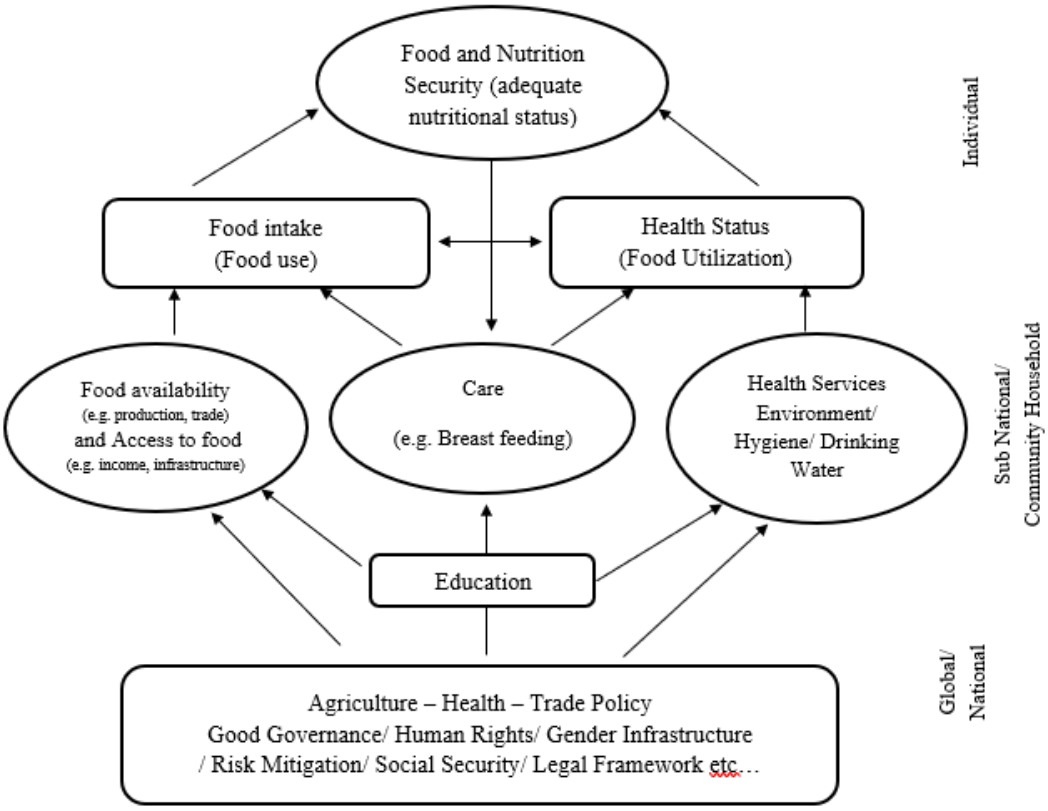
Food security is considered an important factor for the sustainable development of communities and focus on this issue in rural areas. Food security in developing countries is of utmost importance (Ahmadi Dehrashid et al., 2021). The definition of food security states that everyone has access to enough food for an energetic, healthy life at all times. Food security includes, at a minimum, the accessible supply of nutritious, safe foods together with the security of being able to obtain delicious foods in methods that are accepted in society (Keenan et al., 2001).

Food is a fundamental human need that must be met before any other developmental issues. As a result, poor nutrition is considered in many communities as a sign of or a measure of poverty. Food insecurity leads to poor health and decreased performance in both children and adults, food security upholds political stability and ensures peaceful cooperation among people (Theingi Myint, Hnin Yu Lwin, Thuzar Linn, 2018).

More than 37 developing nations were classified by the FAO as having urgent food needs in 2008. It is undisputable that all nations must take action to promote food security. In this context, food security has three dimensions: (1) availability and stability of nutritious food at the national and household levels; (2) the requirement to ensure that every household has sustainable access to enough food on the physical, social, and economic levels; and (3) efficient utilization food use to derive adequate nutrition from its food supply. The response to this challenge, particularly in emerging nations, is to prioritize the growth of the agricultural sector in order to increase higher food production, secure enough domestic food supply, and reduce reliance on food imports(Kyaw, 2009).

The nutritional component of food and nutrition security is attained when safe access to food is combined with an unpolluted setting, sufficient health care, and educated care to guarantee a healthy and active life (free from malnutrition) for all household members.

Figure (2.1) Interplay of Nutrition and Food Security on Different Levels



Source: Wocatpedia.net, 2022

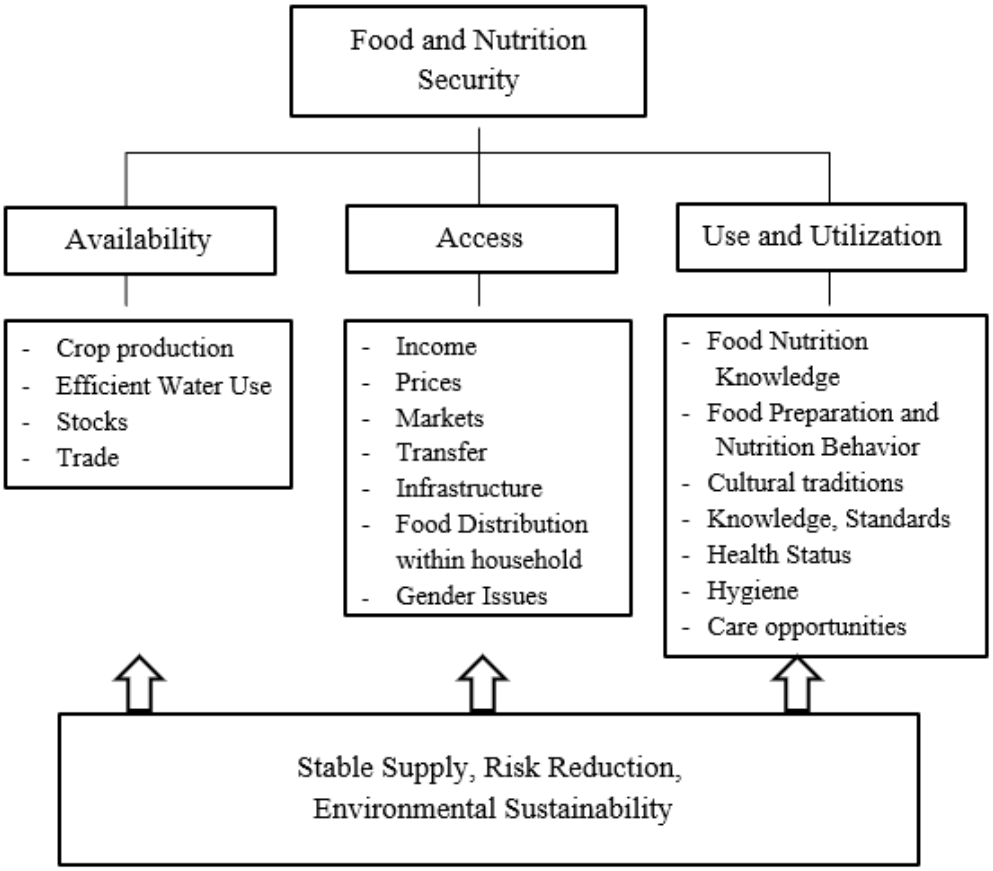
The aforementioned figure (2.1) illustrates the intricate details and interactions between various degrees of food and nutrition security. The amount of agricultural production, the state of the infrastructure, international policies, and gender issues are just a few of the global and national factors that have a significant impact on the availability and accessibility of food, care and health services, environmental and hygienic conditions, and other subnational factors that directly affect communities and households. To modify and improve the situation on a subnational level, education is essential. Improved food access and availability, together with care factors, impact an individual's food intake or food usage, whereas care and concerns about one's health and cleanliness affect one's health status such as food utilization.

2.2 Dimensions of Food Security

Community food security is a relatively new idea and the awareness of household food security can be expanded to include community food security. Community food security is concerned with the underlying social, economic, and institutional factors within a community that affect the quantity and quality of available food as well as its affordability or price in relation to the adequacy of financial resources to acquire it, as opposed to household food security, which is focused on the ability to obtain food at the household level (Barbara Cohen, 2002).

The framework of food and nutrition security dimension is made up of four factors: availability, access, usage or utilization, and stability. The figure below shows the three factors that describe the flow of food, from accessibility and availability through usage and utilization as well as the sustainability factor. These factors are shown in the graph below in the bottom rectangle, which represents the temporal determinant and factors of an enabling environment or frame conditions of food and nutrition security. All other factors are essentially impacted by stability starting at the base.

Figure (2.2) Dimensions of Food Security



Source: Wocatpedia.net, 2022

Food availability on a national scale is influenced by food aid, domestic food production, commercial food imports and exports, and domestic food stocks. Food can be self-produced at home or bought from nearby markets. Crops must be grown in order to produce food, which requires water resources.

Food access is guaranteed when every home has enough money to purchase food in sufficient amounts, of acceptable quality, and in a variety appropriate for a balanced diet. Access is also influenced by the social, political, and physical environment. The availability of food for affected households may be substantially risked by drastic changes in these dimensions, which may seriously interfere with production plans.

Food utilization is optimal consumption, it is also necessary to have a clean physical environment, sufficient sanitary facilities, and knowledge and awareness of the best practices for food preparation, health care, and storage. In this situation, having and drinking access to clean drinking water is crucial many people around the

world do not have access to clean drinking water, which is related to the fact that, in addition to other issues, groundwater is frequently contaminated by industrial, agricultural, or human waste water.

Food stability is the temporal component of food and nutrition security. Stability exists when the housing supply is constant over the long term and throughout the year. Food stability included obtainability of food, money, and jobs. Through initiatives that improve household resilience, it is also necessary to lower external threats like disease outbreaks, market instability, crises, and natural disasters (Wocatpedia.net, 2022).

According to (FAO, 2022), food production, stock levels, and net trade all impact the "supply side" of food security, which is examined. A sufficient quantity of food at the national or international level does not automatically provide food security for households. As a result of worries about inadequate food access, policies now place a larger emphasis on incomes, spending, markets, and prices in order to achieve food security goals. Utilization is frequently defined as the process through which the body extracts the most nutrients from diet. Individuals that receive enough care and feeding will consume enough energy and nutrients as a result of proper food preparation, a varied diet, and intra-household food distribution. A person's nutritional condition when coupled with good biological absorption of the food they consume.

Food security indicators have four main dimensions as food availability, food access, food utilization and food stability. According to its basic definition, food security can be understood by considering the following four dimensions;

2.2.1 Food Availability

Agriculture subsidiary legislation, exchange rate regulations that affect chances for international trade, and policies that foster stable and desirable circumstances for agricultural investments are other policies that have a direct impact on the availability of food. The term "availability" refers to food's actual physical presence. Food aid, domestic food stocks, commercial food imports and exports, and domestic food production all contribute to the availability of food on a national scale. On a home level, food may be self-produced or purchased from local markets. Water resources are needed to grow the crops in order to create food. Pressure on already-existing natural resources, such as land and water, is on the rise as a result of population growth and climate change. The effects of climate change frequently result

in losses of economic livelihoods due to land degradation, a shortage of irrigation water, reduced soil moisture, and other factors. Long-term food security may be at risk from this, along with a rise in disputes over the use of water resources (cultivation of crops for energy use against cultivation of crops for nutritional use, use by other sectors like drinking water, industry, and environment). The resilience of agricultural systems can be strengthened, risks can be decreased, and livelihoods can be secured with the help of appropriate soil adaptation measures, such as irrigation systems that increase water-use efficiency through cultivation methods and technologies, infrastructure development for water harvesting and reuse of treated waste water and water of marginal quality, and improved soil-water management in rain fed systems. Supporting local water user organizations and improving their planning and management abilities can help decrease hazards associated with limited resources and resolve disputes (Wocatpedia.net, 2022).

At the household level**,** food availability is having enough food must be produced on-site or accessible at nearby markets to feed the population. In times of need, food aid may be given to the food and water supply in some places. The availability of food may also be influenced by donations and wild animals. The amount of food that is easily accessible at the national level is determined by national production plus storage and imports, including food aid, less the amount of exports, seed, feed, and post-harvest loss(Information et al., 2011). The supply of food through production, exchange, and distribution is related to food availability. To discuss the concepts of food availability, self-production, market access, and production vs. purchasing of food in order to assess how well-off one is in terms of access to food distribution and exchange (San Lwin, 2016).

2.2.2 Food Access

Food access is based on whether a household has enough money to buy food at market prices or enough land and other resources to raise food on their own. Direct access, economic access, and social access are the three typical categories. Three factors are used to account for these accesses: household income and expenditure, the proportion of money expenditure on food, and daily ration, or how much they eat when they are full(San Lwin, 2016).Consumers' ability to afford the food they need relies on their financial situation. It refers to a household's ability to purchase food on the market using either its own resources of income or outside funding like transfers

or gifts. This emphasizes the significance of household purchasing power. Household income, food costs, employment opportunities, and working resources including labor, capital, and capability all affect whether a household has access to food(Information et al., 2011).

Access is assured when all homes have enough money to buy food in quantities, of acceptable quality, and in a variety suitable for a balanced diet. This primarily depends on the quantity of resources available to the household and the cost. In addition, the physical, social, and policy environments all play a role in accessibility. Affected households' availability to food may be gravely threatened by drastic changes in these dimensions, which could seriously disrupt production plans. Droughts or floods could become more common in developing nations. The harvest volume declines and food costs rise, which affects households' access to and availability of food. There are several technical adaption strategies available to stop such detrimental consequences. To hold back water and elevate the shallow groundwater tables, one of them involves building infrastructure like tiny dams and reservoirs or water-spreading weirs. Other flood-prevention measures include building dykes and better drainage systems. Furthermore, flood-sensitive planning, early warning systems, and emergency plans further improve the capacities to deal with extreme weather occurrences and to protect the natural environment (Wocatpedia.net, 2022).

2.2.3 Food Utilization

Food utilization is using appropriate food storage and processing procedures to have sufficient nutrition, child-care knowledge and sufficient health and sanitation services(San Lwin, 2016).Food utilization is the ability of the body to absorb healthy, nourishing food that is necessary for good nutrition. This is based on how much, what kind, and how diversely the household eats, as well as how well its sanitation, health care, and maternal and child care systems are functioning. Utilizing food also refers to distributing food fairly within households and maintaining practices for food preparation, storage, processing, and nutrition(Information et al., 2011).

Use of foods, which is influenced by knowledge and habits, describes the socioeconomic aspects of household food and nutrition security. Assuming that there is access to and availability of nutritious food, the household must decide what food to buy, how to prepare it, how to consume it, and how to distribute it among the

members of the household. Utilization of biological resources is another factor. This has to do with how well the human body can process food. When it comes to daily physical activity, like working in agriculture, this extra energy is crucial. In addition, proper consumption necessitates a hygienic physical environment, enough sanitary amenities, and knowledge and awareness of the best practices for food preparation, health care, and storage. In this context, having access to clean drinking water is crucial, particularly for cooking and fostering a healthy atmosphere for the populace. Groundwater that supplies safe drinking water is frequently contaminated by industrial, agricultural, or human waste water, along with other causes. The 884 million people lack access to safe drinking water worldwide. (Wocatpedia.net, 2022).

Most of households, there are no assurance that food will be used efficiently even if it is both accessible and available. The large portion of the poor people does not eat adequate foods high in protein, such as fish or meat. They do not eat enough fruits and vegetables that are rich in vitamins and minerals, according to anecdotal evidence and a significant prevalence of micronutrient deficiencies. Instead, rice dominates diets for the simple reason that it is reasonably priced. Consequently, a large portion of the population can "fill their stomachs." They do not perceive a need for food, but without a healthy diet, their bodies are unable to develop physically and cognitively to their full biological potential. A healthy diet should not be expensive, but most people lack basic nutritional understanding. They lack the skills necessary to cook healthful, well-balanced meals using a variety of inexpensive, locally produced foods. Common food preparation techniques, including overcooking vegetables, lessen the nutritional content of the food people eat. The Department of Public Health (DOH) and development partners should expand the range of awareness-raising activities and trainings for nutrition and suitable practices in order to stop all kinds of malnourishment and achieve SDG 2.2. SDG 2.2 is to remove all types of malnutrition, including reaching the goals for stunting and wasting in young children set by the international community by 2025, and takes care of the nutritional needs of adolescent girls, pregnant and lactating mothers, and elderly people. It should also be encouraged to offer options for combining these trainings with programs that promote maternal and neonatal health as well as hygiene by 2030(Robertson et.al, 2017).

2.2.4 Food Stability

Food stability is the consistency of food production. Food instability occurs in three stages: temporary, seasonal, and persistent. The amount of time that households worry about food, and food price stability are used in this study (San Lwin, 2016).Stability is frequently associated with the context of vulnerability and the risk factors that may have a detrimental impact on the accessibility or availability of food. For people and households to always have access to the food they need and it is necessary to make food available. Different types of food are grown in various subnational regions of Myanmar due to the country's diverse agro-ecological circumstances. Due to poor communication and road access, remote areas including portions of the Shan, Chin, Kachin, and Rakhine States may experience unpredictable food supply, especially during the off-seasons. In the off-season, it may be challenging for households to maintain a steady supply of foods that are nutritiously diverse and good for all family members(Information et al., 2011).

Stability is the term used to characterize the temporal aspect of food and nutrition security, or the time period that is taken into account. When home supply is stable over the long term and throughout the year, there is stability. That includes financial resources, food, and income. Furthermore, it is crucial to reduce external risks like natural disasters, climate change, economic uncertainty, conflicts, or epidemics through initiatives and implementations that boost household resilience. These measures include insurances, such as those against crop failure and drought, as well as environmental protection and the wise use of natural resources like water, land, and soil (Wocatpedia.net, 2022).

2.3 Effects of Food Insecurity

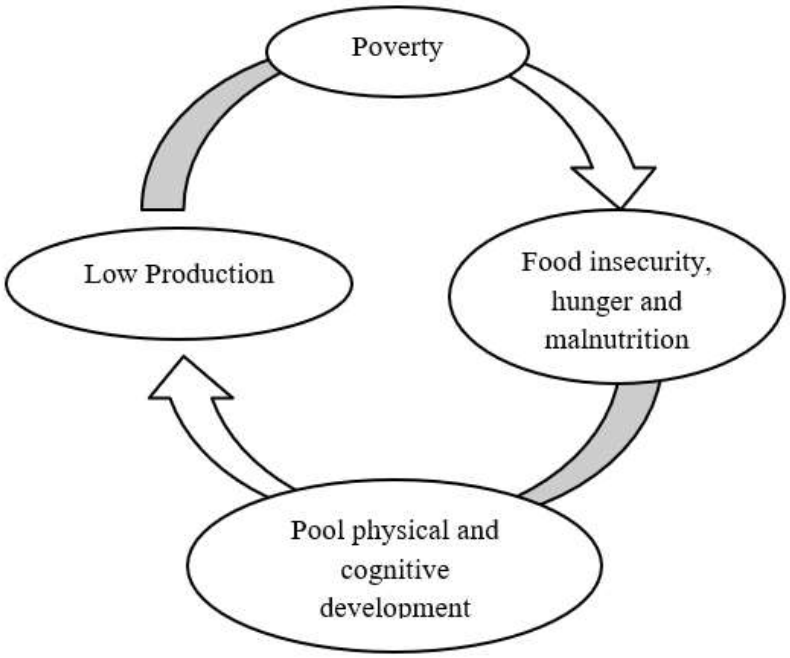
Globally, rural households with fewer landownership, experience more food insecurity since resources are harder to get and there are fewer markets, found in developing nations. The household food insecurity access score, which computes food intake for one month and determines the degree of food security based on food consumption during the previous thirty days, was used to calculate food security. Food insecurity is primarily caused by rising food prices, rising fuel costs,

transportation expenses, a lack of agricultural inputs, and a shortage of markets. A family's level of food security is greatly influenced by its landholding, earning capacity, and proximity of its farm to the market. As the distance of framing plantation from market place increases labour costs, transportation costs, and fuel charges that affect household livelihood inversely (Munawar et al., 2021). Food insecurity is the inability to obtain wholesome foods that are safe and nutritious or the restricted or unsure ability to do so in manners that are acceptable to society. The definition of hunger means an uncomfortable or painful feeling brought on by a lack of food, the ongoing, unpredictable inability to get nourishment (Barbara Cohen, 2002).

The persistent or protracted food insecurity is usually the result of poverty. The lack of food due to inadequate agricultural practices, market failures, or the difficulty in accessing food because of low income are some of the particular reasons of chronic food insecurity. Although there are significant differences amongst the States and Divisions, 10% of the population is thought to fall below the regional poverty line for foods. This is based on the least amount of food spending required to fill a consumption hamper and meet the caloric needs of all household members(Information et al., 2011). High level of food insecurity in Myanmar can be indicated by high levels of severe and moderately malnourished children, adults, poverty of households and instability of food price in Myanmar.

The effects of food insecurity may affect practically every aspect of society, policy makers, professionals, and academics around the world are extremely interested in the subject in large part to the fact. For instance, the 2007–2008 food riots and price spike issue showed how important food security is to preserving political stability. Food security's significance for public health is undeniable given that 870 million people throughout the world consume fewer calories than they need and the numerous negative effects on physical and mental health that result from such food shortage (Jones et al., 2013).

Figure (2.3) Interrelated of Food Insecurity, Malnutrition and Poverty



Source: FAO, 2022

Figure (2.3) mentioned the connections between these three concepts (food insecurity, hunger and malnutrition) of food insecurity must be understood. The typical understanding of hunger is that it is an unpleasant or painful feeling brought on by a lack of food energy. Deprivation of food is the medical term for hunger. Not all persons who are food insecure feel hungry. This is because there are other causes of food insecurity, such as those resulting from inadequate dietary intake of micronutrients.

Deficits, excesses, or imbalances in the consumption of macro- and/or micronutrients cause malnutrition. Malnutrition can result from food poverty or it can be caused by non-food factors such poor child care practices, a lack of access to health care, and an unhealthy environment. Hunger clearly has a connection to poverty, but inadequate nutrition is also a root cause of poverty.

The best chance of quickly eliminating widespread poverty and hunger is a plan for combating poverty combined with measures to assure food security. However, the issue of food security cannot be solved by economic growth alone. A combination of income development, direct nutrition interventions, and investments in health, water, and education are required to solve food insecurity (FAO, 2022).

Long-term development strategies are typically used to address poverty, such as education or access to productive resources, such as credit, and also need more direct access to food in order to enable them to raise their product. Chronic food insecurity involves long-term or persistent issues, such as people who are unable to meet their minimum food requirements over a sustained period of time, extended periods of poverty, lack of assets, and inadequate access to productive or financial resources. Food insecurity that is transitory is temporary and transient. The capacity to create or obtain enough food to sustain a healthy nutritional status suddenly declines. Short-term shocks and swings in food access and availability, including yearly changes in household incomes, food costs, and domestic food production. Temporary food insecurity can appear unexpectedly and is generally unpredictable. This makes planning and programming more challenging and calls for a variety of intervention types and capacities, such as early warning systems and safety net programs (FAO, 2022).

According to the United States Department of Agriculture (USDA), food insecurity is an economic and social condition that affects households' ability to access enough food on a daily basis (USDA, 2020). Numerous factors affect food security status, with race/ethnicity and household size having the most effects. Compared to homes without children, households with children, particularly those under the age of six, showed a higher rate of food insecurity (Dakota, 2020).

Food insecurity is the absence of one or more of these conditions. Food insecurity can be temporary or chronic, with seasonal food insecurity sitting in the middle of the two categories. It is not clear how long food insecurity is considered to be either chronic or temporary. Hunger is sometimes equated with food inadequacy, or eating too little food because of a lack of money or resources. All people need to have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life at all times can be food security is achieved at the individual, household, national, regional, and global levels (Jones et al., 2013).

2.4 Challenges of Food Security in Myanmar

The four pillars, or dimensions, of food security have been described as food availability, access, utilization and stability. The demand for food and proteins is rising at a rate that is even higher than the rate of population expansion, which makes

it challenging to meet global food security needs. By minimizing environmental impacts and enhancing social benefits, the rising burden on food security and demand for high-quality, nutritious food, such as from animal products, must be managed sustainably. Investments on the agricultural systems are predominant required particularly in low- and middle-income nations where population expansion and stress. Taking on the structural issues will be especially crucial to ensuring food security and getting the most out of these investments. A world that is changing quickly makes it unlikely that investments in agriculture can produce sustainable solutions. The need for adequate and affordable food supply through sustainable agricultural services has been emphasized in the Food and Agriculture Organization of the United Nations (FAO) report titled "The Future of Food and Agriculture: Trends and Challenges." This is necessary to fulfill the growing demands of the expanding global population(Calicioglu et al., 2019).

Farmers with small holdings operate 80% of the farms in Myanmar. Farmers' access to financing and their capacity to buy agricultural supplies in advance of the main cropping season are likely to be hampered by microfinance organizations. Smallholder farmers' access to food and means of subsistence, particularly for those who fall into the poorest quintile, may be directly impacted in agriculture cultivation system. The Irrawaddy Delta region's summer rice harvest season runs from mid-March to mid-April. Farmers may have had trouble finding the necessary workers due to the current scenario, which could have an effect on the crop yield. Additionally, if the instability persists, it would be difficult to prepare the ground for the primary rice crop, which begins in May and June (OCHA, 2021).

The opportunities and challenges that must be overcome for the agriculture and foods supply system to be sustainable, as well as their complexity, have been underlined. Given the financial and resource limits, it's going to be important to prioritize the means of developing an effective, less resource-intensive and more advantageous system. As a result, this analysis of the connections between the many difficulties aids in directing the crucial decision-making processes to develop scenarios that would buck any negative tendencies. The key challenges by the food and agricultural systems over the near future be grouped into three clusters (1) challenges related to food stability and availability, (2) challenges related to food access and utilization, and (3) systemic challenges are mentioned in following;

Challenges for food stability and availability

- Consistently raise agricultural output to keep up with rising demand.
- Make sure the natural resource basis is sustainable.
- Address the intensification of natural risks and climate change.
- Prevent transnational and new threats to the agriculture and food systems.

Challenges for food access and utilization

- Eliminate the worst forms of poverty and lessen inequality.
- Make an end to all forms of malnutrition and hunger.
- Increase options for generating money in rural areas and deal with the underlying causes of migration.
- Develop resistance to humanitarian emergencies, disasters, and conflicts.

Systemic challenges

- Improve the effectiveness, diversity, and resilience of food systems.
- Address the need for national and international governance that is effective and cohesive.

The challenges related to food stability and availability, population growth, and rising levels of per capita income alter the nature of the demand for food and agricultural products, which has an impact on how such goods are produced. In addition, despite rising food demand, crop yield increases have begun to plateau. These trends put pressure on natural resources, which collectively highlight the need to improve resource use efficiency. The environment suffers as a result of the frequent use of chemical inputs. In order to address this issue, adopting sustainable food systems is required. Agriculture that is climatic change can assist build resilience. Additionally, agricultural subsidies need to be more coherent.

According to projections, the demands on agricultural land, water, forests, fisheries, and biodiversity must rise and access the consumption issues with food. Although the demand for agricultural land will decline in high-income countries, low-income countries will experience the opposite trend. Therefore, the barrier is not a shortage of land, but rather a lack of access brought on by subpar infrastructure, a disconnect from the main markets, or a susceptibility to disease outbreaks. Furthermore, the land that is available is concentrated in a few numbers of nations,

placing these resources at risk of environmental and societal stress. Water stress is an issue for the future food and agricultural systems, together with land availability. Changes in water supply will contribute to water stress in addition to shifts in water demand, temperature changes, and precipitation patterns.

The increase in natural hazards concerning the future of food and agriculture, climate change raises a number of issues: it harms and reduces agricultural productivity; degrades soil, forests, water, and other natural resources; and puts strain on the ecosystem. In addition to having an effect on crop yields, fish supplies, and animal health, climate change also threatens the stability and availability of the food supply. Due to the negative effects of climate change on farmer incomes and livelihoods, food access is also significantly impacted. Globally, the impact of climate change will only marginally outweigh the advantages in the near future (until 2030), as plant growth is anticipated to rise due to warmer temperatures. But beyond 2030, the negative effects of climate change, such droughts and floods, will become more severe in most of the world, resulting in lower yields and higher losses. Beyond 2030, it is anticipated that these developments would increasingly put food security in danger (Calicioglu et al., 2019).

2.5 Reviews on Previous Studies

The following previous studies are structured concerning the literature review on the food security in Twantay Township in Yangon Region and the outcomes of this thesis is supported to reduce food insecurity of communities in Myanmar.

(Wabwoba & Wakhungu, 2013) studied on "Factors Affecting Sustainability of Food Security Projects among the Masaai Community". The independent variables are the community member participation, leadership style and financial levels while the dependent variable is the sustainability of community food projects in Kajiado County in Kenya. The findings stated that community involvement is crucial to the long-term viability of projects promoting food security. The community is interested to takes part in the conception and implementation, that communities may benefits and also effective to ensure sustainability by making efficient use of project resources.

(Zakari et al., 2014) studied on "Factors Influencing Household Food Security in West Africa: The Case of Southern Niger" which respondents to be the main causes of food insecurity and learned on to the social, demographic and economic aspects of the households. According to the results, there are many factors such as poverty,

drought, floods, diseases, and pest assaults, have a substantial impact on the likelihood that a household will have enough food to feed all of its members. These factors have an adverse effect on household food security as well as having long-term effects on life and survival.

(Premanandh, 2011) studied on "Factors affecting food security and contribution of modern technologies in food sustainability" and the involved variables were population growth, land degradation, water scarcity and climate change and food production, Food loss, transgenic technology, policy regulations, and agroforestry. The suggested that political stability and adequate investment in modern agriculture may help to alleviate the global food issue.

(San Lwin, 2016) studied on "Factors Affecting Food Security among upland agriculture households in Peletwa Township, Chin State of Myanmar". That study mainly focused on food security factors as food availability, food access, food utilization and food stability. This is merely one of the elements that adversely affect food security. Food is an issue for the most homes and the amount of food security decreases as people worry about food more frequently.

Based on food and agricultural organization (FAO), the thesis considered four factors such as food availability, food access, food utilization and food stability that can be provided the study's proper outcomes.

CHAPTER III
OVERVIEW OF THE FOOD CONSUMPTION SITUATION IN MYANMAR

3.1 The Food Consumption in Myanmar

The 2.8 million people in Myanmar were deemed to be food insecure since February 2021. Due to the local crisis-induced economic stoppage, WFP forecasts that 1.5 to 3.4 million extra people may be at risk of food insecurity and in need of assistance. This is mainly because it is more difficult for the impoverished to afford food because they have lost their employment and money. The most at-risk groups are those who are vulnerable in urban regions that are affected by the economic downturn, but longer-term effects on food systems will also put strain on the food security of rural populations. Along with losing their jobs and income, the poor in Myanmar stand to lose money due to rising food and fuel costs, trade disruptions, weak economic growth, and internal displacement of ethnic minority groups. Rice and cooking oil prices have climbed by 5% and 18%, respectively, on all monitored marketplaces since the beginning of February 2021. However, Border States including Rakhine, Kachin, and Chin have seen much bigger rises. Continued price increases are expected to have a negative impact on household food security because of how important rice and cooking oil are to diets and how much the poorest households spend on rice. The current situation is extremely precarious and there may be additional short- and long-term impacts on Myanmar's food security and poverty levels. Myanmar's economy was already severely impacted by the COVID-19 pandemic in 2020; a quarter of the country's population was poor and a further third was vulnerable to poverty(OCHA, 2021).

According to the department of fisheries, over 31% of the 161,283,076 acres of land in Myanmar were agricultural in 2018–2019. The 29,674,138 acres, or 17.75%, of the agricultural land was a net seeded. In 2018–2019, there were 35,506,567 acres of other wood land and 14,243,104 acres of cultivable waste land. Paddy harvests were sown on 17,861 thousand acres in 2018–19, yielding 27,574 thousand tons of

rice. Cattle breeding fell by 43.86%, buffalo breeding by 50.83%, pig breeding by 68.51%, duck breeding by 73.33%, sheep and goat breeding by 77.84%, and poultry breeding by 78.07% between 2018 and 2019. 1,675,714 thousand viss were produced from freshwater fisheries, whereas 2,001,862 thousand viss were produced from marine fisheries (1 viss – 1.6329 kilogram)(Statistical Year Book,2020).

Food should be seen in light of the variety required to meet peoples' dietary and nutritional demands. The major components of food include cereals for grain, pulses, fish, and meat for protein, vegetables and fruits for minerals and vitamins, and necessary fats from edible oils, primarily vegetable oils. Myanmar is able to produce enough food to satisfy its population's basic needs, with the exception of vegetable oil, which is imported yearly (palm oil). A few of the main export commodities are rice, legumes, and fisheries goods. It is well known that Myanmar has enough food. However, some places in Myanmar, still have with food deficit and, struggle with a lack of food.

People in Myanmar consume more rice than people in other Asian nations do. Rice is the main basic food. According to the FAO, per capita rice consumption in Myanmar has decreased over time in 2008. In 1997, 1998, 1999, 2000, 2001, 2002, and 2003, it was 212, 215, 208, 206, 205, and 196 kg, respectively. However, compared to other Asian nations, the rate of rice consumption in Myanmar is remains high.

Most rural households keep livestock, including cattle, sheep, goats, pigs, and chickens. In Myanmar, the trade in animals is not very large. Domestic meat production is seen as adequate on a national level to match current consumption patterns. Both marine and freshwater fisheries can be found in abundance in Myanmar. Fish production has dramatically expanded during the past ten years, rising from 700,000 million tons in 1998 to 1,867,000 million tons in 2008. The main source of animal protein in the diet for the people of Myanmar is fish, which also makes up 10% of the average household's monthly spending.

While agricultural growth is crucial for the entire country, it is particularly crucial for rural areas, where 70% of the population lives and relies primarily on agricultural production as their major source of income. Additionally, agricultural activities substantially influence the employment prospects for landless labor and other rural populations (Information et al., 2011).

Due to economic instability in 2021 during a time of political change, poverty rates across the country in Myanmar have increased significantly. Compared to 32 percent in 2015 and just fewer than 25 percent in 2017, household poverty rates are forecast to have increased to between 40 and 50 percent in 2021, depending on assumptions about the scope of the economic repercussions. Thus, in addition to the anticipated 2.86 million households that were already in poverty in 2015, between 849,000 and 1.87 million new homes will be living in poverty in 2021.

The effects of these disruptions on poverty are profound, not only in the steep rises in the total number of poor households but also in the severe deepening of poverty for existing poor households. It is anticipated that at the conclusion of the current fiscal year, the average poverty gap (expenditure shortfall), which was 26 percent in 2015, will be between 34 and 40 percent for people living in low-income households in 2021.

In spatial terms, 60 percent of the newly forecasted impoverished households are located in the Dry Zone and Delta, 25 percent are in the Hills and Coastal zones, and 15 percent are in Yangon. Most newly poor households are located in rural areas 75% of them. These estimations do not take into account recent rural emigration from Yangon. Increased levels of food insecurity are inextricably linked to higher poverty rates. Between 44 and 54 percent of people are anticipated to be living in households that cannot currently afford the required diet (based on the least expensive nutritional sources), up from 36 percent in 2015, depending on the economic disruption assumptions (IFPRI, 2021).

3.2 Livelihoods in Myanmar

The largest contributor to the nation's economy continues to be the agriculture sector. However, the agriculture sector's modest expansion in recent years has not been sufficient to effectively solve poverty, achieve food security, or support the nation's sustained growth in its Gross Domestic Product (GDP). Nevertheless, agriculture continues to provide the bulk of rural residents with a living. According to the 2014 census, skilled agricultural, forestry, and fishery workers made up the highest percentage of the rural population that was employed (56.6%). These occupations were followed by elementary occupations (17.9%), which involve simple and routine tasks requiring the use of handheld tools and frequently some physical

effort. More than half of all farming households do not have enough land and livestock to generate a living from agriculture, poverty continues to be predominantly as rural issue (Theingi Myint, Hnin Yu Lwin, Thuzar Linn, 2018).

Agriculture and related activities are essential for rural communities' subsistence livelihoods. Food prices fluctuate with the planting season since crop production is seasonal prices fall during harvest and rise progressively the rest of the year. Seasonal price increases are significant for farmers and lead to unpredictable food farm income, which can further impact prices. market information, including on commodity flows and pricing, is essential to safeguarding food availability and access, especially for low-income households(Information et al., 2011). The agricultural sector, which is essential to the rural economy, is probably going to shrink in the next year. Due to their greater cost (particularly fertilizer) and the uncertainties surrounding the output markets, farmers are investing less in inputs during the monsoon season of 2021. The ongoing financial system crisis and the fact that farmers are receiving conflicting information about their repayment obligations to the Myanmar Agricultural Development Bank (MADB) have led to many smallholder farmers being cash-constrained and disrupting the credit markets for the purchase of farm inputs(IFPRI, 2021).

The predictions of the analysis about economic disruption and the choice of targeting criteria influence the anticipated cost of transfers to reduce food insecurity. It would cost between 25 million and 32 million USD per month to reach between 644,000 and 827,000 households with a targeted targeting criterion (i.e., households with children under the age of five and/or pregnant women, and unable to purchase a typical calorie adequate diet if all expenditure went solely to food). Without food assistance, young children in such households have a considerable risk of having their physical development stunted or wasted. Anemia prevalence would rise, mortality rates will increase and there will be a permanent loss of income for all households. Furthermore, even when the "lean season" before the following harvest approaches, half of this population is dependent on smallholder farming or daily income. Although logistically challenging, transfers of physical goods (such as grains, pulses, or oil) would cost about the same per family as financial transfers and may become necessary in the near future due to the existing lack of access to cash through the banking system. Physical commodity transfers also have the benefit of being self-

targeting if safe but less-preferred food items like broken rice, inferior lentils, and palm oil are supplied. These goods are readily available in Myanmar, which facilitates local purchase and significantly cuts down on the amount of time needed to distribute food assistance(IFPRI, 2021).

Farmers need quick access to loans in order to purchase inputs before the agricultural season. The Myanmar Agricultural Development Bank (MADB) frequently serves as a significant source of agricultural loans, particularly for regions that produce rice. The Myanmar Agricultural Development Bank (MADB) is typically a major provider of agricultural credit, especially for rice-producing areas MMK 1.4 trillion in monsoon loans were issued by MADB in May and September 2020. In addition to the MMK 481 billion issued from a COVID-19 special relief fund. However, MADB credit provision for the 2021 monsoon season will probably be significantly less than usual due to problems with loan repayments from the previous season and challenges with providing financial services in rural areas(IFPRI, 2021).

3.3 Overview of Agricultural Sector

There are two main national agencies responsible for the agricultural sectors in Myanmar are the Ministry of Agriculture and Irrigation (MOALI) and Ministry of Livestock, Fisheries and Rural Development (MOLFRD). The agriculture sector is now being emphasized more than ever as the main driver of global economic growth as a result of international experience. Growth in agricultural productivity is acknowledged as being more pro-poor than any other sector of the economy; it directly contributes to increasing the actual incomes of rural poor people and so lowering poverty. This suggests that in a sector like agriculture, which needs relatively high public investments, carefully planned interventions and policies supportive of growth could significantly help a nation's overall efforts to reduce poverty. In a nation like Myanmar, where a sizable section of the population still lives in rural areas, this is particularly true.

Table (3.1) Area of Selected Crops under Weir in Yangon Region

Year	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019
Paddy	2564	2557	2563	2593	2575
Wheat	13	9	9	9	9
Maize	30	31	31	33	51
Groundnut	29	28	27	29	27
Sesame	23	19	18	15	11
Pulses	1065	1087	1098	1074	1041
Sugar cane	1	1	1	1	1
Other food crops	158	147	139	135	132
Other non-food crops	54	55	54	54	54
Total (acres)	**3937**	**3934**	**3940**	**3943**	**3901**

Source: Statistical Year Book 2020

Table (3.1) state that the area of selected crops under weir for paddy, wheat, maize, groundnut, sesame, pulses, sugar cane, other food crops, and other non-food crops received total acres of 3937 in 2014-2015. However, the total acres of selected crops under weir slightly decreased to 3934 from seven sectors in 2015-2016. If compared to 2016-2017, the selected crops area under weir slightly increased from 3940 acres to 3943 acres in 2017-2018. Pointedly, the selected crop area under weir decreased to 3901 acres in 2018-2019.

Table (3.2) Area of Crops under Irrigation in Yangon Region

Year	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019
Paddy	4632.88	4640.51	4636.13	4939.34	5027.12
Wheat	92.78	90.10	78.37	75.59	67.66
Maize	140.91	140.74	146.00	169.74	208.49
Groundnut	77.98	86.45	88.58	90.86	89.88
Sesame	281.61	285.66	335.49	260.58	300.40
Pulses	287.51	330.55	336.50	305.97	294.66
Sugar cane	29.31	28.27	27.63	26.79	28.23
Other food crops	1017.83	1007.80	1016.54	1038.46	1055.06
Cotton	23.36	4.82	3.87	17.11	11.62
Other non-food crops	41.92	36.88	35.99	36.48	36.56
Total Irrigated area (acres)	**6626.09**	**6651.84**	**6705.10**	**6960.92**	**7119.68**

Source: Statistical Year Book 2020

Table (3.2) mention that the area of crops under irrigation for paddy, wheat, maize, groundnut, sesame, pulses, sugar cane, other food crops, and other non-food crops had 6626.09 acres of total irrigated area in 2014-2015. Additionally, there were 6651.84 acres, 6705.10 acres, and 6960.92 acres of total irrigated areas in 2015-2016, 2016-2017, and 2017-2018 respectively. Figures of all areas of crops under irrigation increased to 7119.68 acres in 2018 -2019 as compared to the previous period in Myanmar.

Table (3.3) Sown Acreage of Selected Crops in Yangon Region

Year	Unit	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019
Paddy	Acre	1387108	1384341	1359525	1364821	1379243
Wheat	Acre	-	-	-	-	-
Maize	Acre	164	174	155	265	2255
Total (Cereals)	**Acre**	**1387272**	**1384515**	**1359680**	**1365086**	**1381498**
Groundnut (Rain)	Acre	78	78	75	75	80
Groundnut (Winter)	Acre	7823	7445	4947	3685	3583
Sesame (Early)	Acre	-	-	-	-	-
Sesame (Late)	Acre	4366	4371	3838	3870	3816
Total (Oilseeds)	**Acre**	**12267**	**11894**	**8860**	**7630**	**7479**

Source: Statistical Year Book 2020

Table (3.3) Sown acreage of selected crops in Yangon Region is the total area of sown acreage of selected crops for cereals areas such as paddy and maize is 1387272 acres, on the other hand, for total oilseeds area such as groundnut (rain), groundnut (winter), and sesame (late) is 12267 acres in 2014-2015. Additionally, there were 1384515 acres, 1359680 acres, and 1365086 acres of total cereal areas in 2015-2016, 2016-2017, and 2017-2018 respectively. Moreover, the total area of oilseeds was 11894 acres, 8860 acres, and 17630 acres in 2015-2016, 2016-2017, and 2017-2018 respectively. At least, in 2018-2019, the total area of sown acreage of selected crops for cereals is 1381498 acres, then, for total oilseed areas is 7479 acres.

Table (3.4) Harvested Acreage of Selected Crops in Yangon Region

Year	Unit	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019
Paddy	Acre	1343136	1298918	1263092	1289789	1373420
Wheat	Acre	-	-	-	-	-
Maize	Acre	164	174	155	265	2255
Total (Cereals)	**Acre**	**1343300**	**1299092**	**1263247**	**1290054**	**1375675**
Groundnut (Rain)	Acre	78	78	75	75	80
Groundnut (Winter)	Acre	7823	7445	4947	3685	3583
Sesame (Early)	Acre	-	-	-	-	-
Sesame (Late)	Acre	4366	4371	3838	3870	3816
Total (Oilseeds)	**Acre**	**12267**	**11894**	**8860**	**7630**	**7479**

Source: Statistical Year Book 2020

Table (3.4) indicated that the harvested acreage of selected crop in Yangon Region. the total area of harvested acreage of selected crops for cereals areas such as paddy and maize is 1343300 acres, on the other hand, for total oilseeds area such as groundnut (rain), groundnut (winter), and sesame (late) is 12267 acres in 2014-2015. Additionally, there were 1299092 acres, 1263247 acres, and 1290054 acres of total cereal areas in 2015-2016, 2016-2017, and 2017-2018 respectively. Moreover, the total area of oilseeds was 11894 acres, 8860 acres, and 17630 acres in 2015-2016, 2016-2017, and 2017-2018 respectively. At least, in 2018-2019, the total area of harvested acreage of selected crops for cereals is 1375675 acres, then, for total oilseed areas is 7479 acres.

Table (3.5) Production of Selected Crops in Yangon Region

Year	Unit	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019
Paddy	Ton	1926089	1869616	1775233	1827033	1978475
Wheat	Ton	-	-	-	-	-
Maize	Ton	159	169	150	261	2923
Total (Cereals)	**Ton**	**1926248**	**1869785**	**1775383**	**1827294**	**1981398**
Groundnut (Rain)	Ton	24	24	23	23	25
Groundnut (Winter)	Ton	4452	4186	2785	2130	2052
Sesame (Early)	Ton	-	-	-	-	-
Sesame (Late)	Ton	1162	1167	1028	1030	1021
Total (Oilseeds)	**Ton**	**5638**	**5377**	**3836**	**3183**	**3098**

Source: Statistical Year Book 2020

Table (3.5) is about production of selected crops in Yangon Region, the total production of selected crops for cereals such as paddy and maize is 1926248 tons, also, for total oilseeds such as groundnut (rain), groundnut (winter), and sesame (late) is 5638 tons in 2014-2015. Moreover, there were 1869785 tons, 1775383 tons, and 1827294 tons of total cereal production in 2015-2016, 2016-2017, and 2017-2018 respectively. Moreover, the total production of oilseeds was 5377 tons, 3836 tons, and 3183 tons in 2015-2016, 2016-2017, and 2017-2018 respectively. At least, in 2018-2019, the total production of selected crops for cereals is 1981398 tons, then, for total oilseed areas is 3098 tons.

3.4 Food Security Related Policies and Strategies in Myanmar

There are policies and methods that primarily concentrate on the production of food, but this is insufficient to completely eradicate hunger in developing nations, which also need to address access, stability, and nutrition, distribution, and demand issues. Although the overall amount of food produced should be sufficient to feed everyone, roughly 15% of the world's population, in developing nations, is undernourished due to poor distribution systems and poverty, in addition to the rise in the demand for and production of biofuels. The pandemic crisis significantly disrupted consumer spending, investment, and manufacturing. This issue is especially

severe in developing and undeveloped nations which can produce the essential food items and have an impact on food security and sustainability (Bozsik et al., 2022).

Countries all across the world now have access to a comprehensive global framework for development through the year 2030 thanks to the Sustainable Development Goals (SDGs). The 17 SDGs are the focal point of how national governments are coordinating their development plans. In order to strengthen and expedite national efforts to end food insecurity and malnutrition, strategic reviews for SDG 2 (Zero Hunger) have been conducted in dozens of nations around the world. The worldwide initiative to end hunger includes the Myanmar Strategic Review. Myanmar has proven its commitment to the Zero Hunger Challenge by becoming one of the first nations in the Asia-Pacific to accomplish so, a project started by former UN Secretary-General Ban Ki-moon. Several initiatives centered on SDG 2 have been launched in Myanmar during the past few years by UN agencies(Robertson et. al, 2017).

There is no Government of Myanmar (GOM) document specifically addressing agriculture policy, although there are periodic policy pronouncements and statements of objectives. At the broadest level, the Four Economic Objectives of Government of Myanmar are as follows:

- Development of agriculture as the base and all round development of the other sectors of the economy as well;
- Proper evolution of the market oriented economic system; −
- Development of the economy inviting participation in terms of technical know- how and investments from inside the country and abroad; and
- The initiative to shape the national economy must be kept in the hands of the state and the national peoples.

It's questionable whether the term "agricultural" included above covers livestock and fishing. However, MOALI and MOLFRD activities are incorporated in the ASR's framework. The focus of this section is policy as it relates to agriculture. Although concerns like agro-forestry are relevant to agriculture, forestry is not covered in the ASR's terms of reference. The following are the primary goals GOM has stated it has for agriculture:

- to produce surplus paddy for domestic food security and for promotion of exports;

- to achieve self-sufficiency in edible oils; and
- to expand production of beans and pulses and industrial crops for export

The policies to achieve these objectives are stated as:

- to allow freedom of choice in agricultural production; −
- to expand agricultural land and safeguard the rights of the farmers;
- to encourage the participation of private sector in the commercial production of seasonal crops and perennial crops and distribution of farm machineries and other inputs.

The strategies for the agriculture sector are enumerated below:

- Development of new agricultural land;
- Provision of sufficient irrigation water;
- Provision and support for agricultural mechanization;
- Application of modern agricultural technologies; and
- Development and utilization of modern varieties.

To ensure a particular policy is implemented effectively, all government departments relevant to its implementation will develop goals and strategies. Normally, the Planning Division of each department is in charge of this. Personnel are employed by the MOALI's Myanma Agriculture Service at the divisional, state, district, township, village tract, and village levels. Other organizations with staff in specific localities where the mandate crop is primarily cultivated include the Myanma Cotton and Sericulture Enterprise and the Myanma Sugar Enterprise. The achievement of input and output targets typically carries more weight than impact since this type of implementation is target-oriented (Social et al., n.d.).

CHAPTER IV
SUVERY ANALYSIS

4.1 Survey Profile

Twantay Township is a township in the Yangon Region. It is situated to the west of Yangon, across the Hlaing River. Twantay is the main settlement and administrative center. The Shwesandaw is located in the township. The Twantay Canal was built in 1881 by the British. Myanmar's longest man-made canal is The Twantay Canal, the longest man-made canal in Myanmar, connects the Irawaddy River and Yangon River more quickly. This canal, which has a length of 35 km, separates Twantay Township, and there is a bridge that crosses it that is known as Twantay Bridge. There are pagodas there, including one that is a duplicate of the Mahabodhi Temple, making Baungdawgyoke Monastery in Twantay Township notable. The 235 villages of Twantay Township are divided into 8 urban wards and 65 village tracts. The pottery industry in Twantay Township has been run by a small number of families for numerous generations. In the region of Yangon, it is also a site of fish aquaculture. The river links with Yangon by a water bus. In a population of 248,720 people, there are 120,012 males and 128,708 females. The data were collected in the Twantay Township of Yangon at Kha Lauk Chaik, Ka Li Htaw, Hpa Yar Gyi, Kan Beit, Let Pan Gwa and Ta Ka Hleit villages.

4.2 Socio-Economy Situation of Twantay Township

The township of Twantay has distinctive styles and techniques used to create pottery and other terracotta products. There is a destination for visitors a trishaw riding to local streets and purchasing stuff at the nearby market. There is Shwesandaw Pagoda, a renowned Buddhist temple in Myanmar. The population, employed rate, kind of housing unit, type of terrain, and source of drinking water are all given in the tables below.

Table (4.1) Population of Twantay Township

Sr. No.	Gender	Population	Percent
1	Male	120,012	48.%
2	Female	128,708	52%
	Total	**248,720**	**100**

Source: General Administration Department, Twantay Township, 2022

According to general administration department data, there are 120,012 male with (48%) and 128,708 female with 52 % in a total population of 248,720 in Twantay Township.

Table (4.2) Joblessness Rate of Twantay Township

Sr. No.	Usual Activity Status	Male	Female	Total
1	Did not seek work	1.7	0.3	**0.7**
2	Full time student	64.3	25.6	**36.9**
3	Household worker	4.9	62.2	**45.5**
4	Pensioner, elderly	17.3	9.2	**11.5**
5	Disabled	4.4	1.4	**2.3**
6	Other	7.4	1.3	**3.1**
	Total Household	**22,252**	**53,899**	**76,151**

Source: General Administration Department, Twantay Township, 2022

Table (4.2) is observation on population which is not in the labor force by usual activity status and gender, according to Ministry of Labour, Immigration and Population, there are total of 76151 are not working among the whole population which divides 22252 males and 53899 females. The majority proportion belongs to household workers by total 45.5% which includes 4.9% of male and 62.2% of female followed by fulltime student which displays 64.3% of male and 25.6% of female are full time students. Pensioner, retired or elderly has 11.5% where there are 17.3 male pensioners and 9.2 female retired. The other groups involve people who do not seek work, ill or disabled and other in which the measurement of them mentioned 0.7%, 2.3% and 3.1% respectively. Among male group, the majority of people stands in full time student (64.3%) while household workers (62.2%) for female group.

Table (4.3) Percentage of Employed Person by Sex and Occupation of Twantay Township

Type of Occupation	Male		Female		Total	
	Employed persons	%	Employed persons	%	Employed persons	%
Managers	203	0.3	130	0.4	333	0.3
Professionals	353	0.6	1087	3.0	1440	1.5
Technicians and Associate Professionals	634	1.1	393	1.1	1027	1.1
Clerical Support Workers	674	1.2	536	1.5	1210	1.3
Services and Sales Workers	6651	11.0	8551	23.6	15202	15.8
Skilled Agricultural, Forestry and Fishery Workers	**25065**	**41.6**	**9511**	**26.2**	**34576**	**35.8**
Craft and Related Trades Workers	7077	11.7	7170	19.8	14247	14.8
Plant and Machine Operators and Assemblers	4968	8.2	254	0.7	5222	5.4
Elementary Occupations	13320	22.1	4529	12.5	17849	18.5
Unstated type of occupations	1313	2.2	4077	11.3	5390	5.6
Total	**60,258**	**100**	**36,238**	**100.1**	**96496**	**100**

Source: General Administration Department, Twantay Township, 2022

Table (4.3) is examining on type of occupations in Twantay region by sex, the highest proportion stands for skilled agricultural, forestry and fishery workers by 35.8% which divides male for 25065 people and female for total of 9511 among other employment groups stands. Second proportion goes to elementary occupations (For Example: cleaner, plumber, porter) which shows total of 17849 people are employed with 22.1% male and 12.5% female followed by 15202 services with 15.8 and sales workers and 14247 craft and related trades workers with 14.8%. The least employment group belongs to higher level managers by 0.3% that 0.3% of male which is in number of 203 male managers and 0.4% of female managers with 130 people while it is found out that 1.1% for technicians and associate professionals, 1.3% for clerical support workers, 1.5% for professionals, 5.4% for plants and machine operators and assemblers and the rest of employed people among total of 96496 people which is not stated has 5390 people with 5.6% by the employed persons aged 15-64 analysis. Skilled employees in agriculture, forestry, and fishing make up the majority of occupations, while the bulk of families run own businesses.

Table (4.4) Percentage of Employment by Industry of Twantay Township

Type of Industry	Male		Female		Total	
	Employed persons	%	Employed Persons	%	Employed Persons	%
Agricultural, forestry and fishing	**32622**	**54.1**	**12229**	**33.7**	**44851**	**46.5**
Mining and quarrying	87	0.1	32	0.1	119	0.1
Manufacturing	2792	4.6	7014	19.4	9806	10.2
Electricity, gas, steam and air conditioning supply	197	0.3	25	0.1	222	0.2
Water supply; sewerage, waste management and remediation activities	**127**	**0.2**	**44**	**0.1**	**171**	**0.2**
Construction	4736	7.9	298	0.8	5034	5.2
Wholesale and retail trade; repair of motor vehicles and motorcycles	4858	8.1	5973	16.5	10831	11.2
Transportation and storage	5978	9.9	121	0.3	6099	6.3
Accommodation and food service activities	2454	4.1	2968	8.2	5422	5.6
Information and communication	114	0.2	42	0.1	156	0.2
Financial and insurance activities	51	0.1	61	0.2	112	0.1
Real estate activities	15	<0.1	6	<0.1	21	<0.1
Professional, scientific and technical activities	38	0.1	40	0.1	78	0.1
Administrative and support service activities	359	0.6	212	0.6	571	0.6
Public administration including civil servants	970	1.6	410	1.1	1380	1.4
Education	248	0.4	1077	3.0	1325	1.4
Human health and social work	154	0.3	256	0.7	410	0.4
Entertainment and recreation	107	0.2	35	0.1	142	0.1
Other service activities	2172	3.6	880	2.4	3052	3.2
Goods – and services – producing activities of household for own use	366	0.6	264	0.7	630	0.7
Activities of extraterritorial organizations and bodies	3	<0.1	1	<0.1	4	<0.1
Unstated type of occupations	1810	3.0	4250	11.7	6060	6.3
Total	**60,258**	**100.0**	**36,238**	**100.0**	**96496**	**100.0**

Source: General Administration Department, Twantay Township, 2022

To measure the households condition and food security, Table (4.4) mention that the among total of 96496 employed people between age 15 and 64, people working in agriculture, forestry and fishing are the largest group with almost half of the population by 46.5% followed by 10831 people who work in wholesale and retail trade with 11.2% and people in manufacturing belongs to 10.2% by 9806 people. As dividing by sex group, for agriculture, forestry and fishing, 54.1% of male and 33.7% of female working and for manufacturing, 4.6% of male and 19.4% of female work in this industry. The lease ratio of working industry displays for real estate industry and activities of extraterritorial organizations and bodies with less than 0.1% followed by 0.1% of working industry which includes industries of mining and quarrying, financial and insurance activities and professionals, scientific and technical activities. Based on the analysis, 171 people worked for water supply such as sewerage, waste management and remediation activities by 0.2% of male workers and 0.1% of female workers. In the mentioned data, there are employees who working in various industries in Twantay Township.

Table (4.5) Type of Housing in Urban and Rural Area of Twantay Township

Sr. No.	Type of Housing	Urban %	Rural %	Total %
1	Apartment/ Condominium	0.4	0.4	**0.4**
2	Bunglow, Brick House	10.7	1.6	**3.2**
3	Semi-pacca House	11.2	2.7	**4.2**
4	Wooden House	39.8	34.1	**35.1**
5	Bamboo House	37.2	57.0	**53.5**
6	Hut 2-3 years	0.3	2.6	**2.2**
7	Hut 1 year	0.3	1.4	**1.2**
8	Other	0.1	0.2	**0.2**
	Total	**9,897**	**55,020**	**64,917**

Source: General Administration Department, Twantay Township, 2022

Table (4.5) is type of housing unit by urban and rural area mentions that over half of the total households belong to bamboo housing among 64917 households which divides 37.2% in urban area and 57% in rural area. The second maximum household lives in wooden houses in both urban and rural region that 39.8% and 34.1% respectively with 35.1% in total. In urban area, the majority of household are

living in wooden houses by 39.8% while in rural area, most people live in bamboo houses by 57%. The smallest percentages of households in both urban and rural areas are those that reside in apartments, condominiums, or other similar structures. The most of houses are constructed by wooden and bamboos in the Twantay Township.

Table (4.6) Type of Toilet by Urban and Rural in percent of Twantay Township

Type of Toilet		Urban %	Rural %	Household %
Flush		1.4	0.6	0.7
Water seal (Improved pit latrine)		80.0	70.6	72.3
Improved sanitation		**81.4**	**71.2**	**73.0**
Pit (Traditional pit latrine)		13.9	8.1	9.1
Bucket (Surface latrine)		1.7	10.3	8.8
Other		0.1	0.2	0.2
None		2.9	10.2	8.9
Total	**Percent**	**100.0**	**100.0**	**100**
	Number	**9,897**	**55,020**	**64,917**

Source: General Administration Department, Twantay Township, 2022

To check food utilization status, this Table (4.6) describes the analysis on conventional households by type of sanitation in urban and rural regions. It is found out that improved sanitation for 73% which includes flush and water seal or improved pit latrine and unimproved types for 27% which involves pit or traditional pit latrine, bucket or surface latrine, none and other. According to the analysis, the majority of households use water seal sanitation both in urban and rural area that 80% and 70.6% respectively followed by household that use pit (13.9%) in urban area and bucket (10.3%) in rural area. A household which doesn't have sanitation system displays 2.9% in urban area and 10.2% in rural area. Among 64917 household in Twantay, only 0.7% of whole population uses flush which divides 1.4% in urban and 0.6% in rural. In conclusion, improved sanitation level has 73 percent in Twantay Township.

Table (4.7) Source of Drinking Water by Urban/Rural in Twantay Township

Source of drinking water		Urban %	Rural %	Household %
Tap water/ Piped		0.1	0.1	0.1
Tube well, borehole		71.2	20.4	29.5
Protected well, Spring		16.8	8.0	9.5
Bottled water/ water purifier		1.7	0.4	0.6
Total improved drinking water		**89.8**	**28.9**	**39.7**
Unprotected well/ Spring		0.6	8.4	7.1
Pool/ Pond/ Lake		9.0	50.9	43.4
River/ Stream/ Canal		0.4	11.5	9.5
Waterfall/ Rain water		0.1	0.2	0.2
Other		0.1	0.1	0.1
Total unimproved drinking water		**10.2**	**71.1**	**60.3**
Total	**Percent**	**100.0**	**100.0**	**100.0**
	Number	**9,897**	**55,020**	**64,917**

Source: General Administration Department, Twantay Township, 2022

Table (4.7) mention that the households use improved sources of drinking water (tap water/ piped, tube well, borehole, protected well/spring and bottled water/water purifier) in Twantay Township. Households' source of drinking water, over 60% of total population are using unimproved drinking water and households in rural area are more using water from unimproved sources for drinking water by 71.1% while even in the urban area, 10.2% of urban population are still using unimproved drinking water which involves water from unprotected well, spring, pool, pond, lake, river, stream, canal, waterfall, rainwater and other. Among 64917 household, the majority of them use water from pool, pond or lakes as drinking water that 9% in urban and over 50% in rural area. Among 55020 household of rural region, over half of the population use water from pool, pond or lake by 50.9%, 11.5% from river, stream or canal and 8.4% from unprotected well and spring. As in whole population, although over 80% of urban household can use improved drinking water, only 28.9% of rural household can use that. Drinking purified water is thought to be the healthiest kind of water; it offers a number of noteworthy health advantages. Despite being generally safe to drink, regular tap water nonetheless has the potential to contain minute levels of pollutants in Twantay Township.

4.3 Survey Design

To accomplish the goals of the thesis, research techniques applied structured method of data collection. The results and the effectiveness of the study are determined by the research methodology. The goal is to measure the gathered data by computing in SPSS-23 are highlighted by the quantitative approaches. Because quantitative data has some kind of scale, which is typically stated in numbers, it may be quantified with some degree of accuracy. In order to obtain accurate results, quantitative research helps to access food availability, access, utilization, and stability. The questionnaire was established based on a review of the literature. So, There are two sections in questionnaire comprised demographic characteristics of farmers households, and section two was dimensions of food security including food availability, food access, food utilization, and food stability. Based on 64917 households, the study picked 200 farmers' households as a sample size of the study. The study served as a descriptive analysis to characterize the numerical data of the components and determine the percentage of cases in the category. The survey was translated into Myanmar language from English language to responses provided by survey respondents to the questions asked in this thesis. The items are scored using a five-point Likert scale, with 1 indicating Never, 2 indicating Rarely, 3 indicating Occasionally, 4 indicating Frequently, and 5 indicating Always. The perceptions of 200 farmer households about their access to, use of, and stability of their food supply as well as their livelihood conditions are examined. Whether the population is small or large for farming households, this study used the smilple random method to gather data from 200 households in the villages of Kha Lauk Chaik, Ka Li Htaw, Hpa Yar Gyi, Kan Beit, Let Pan Gwa, and Ta Ka Hleit in Twantay Township. The questionnaires used for this study are listed in the following table.

Table (4.8) Composition of Sample by Villages

Sr No.	Village	Population	No. of Household	Sample Households
1	Kha Lauk Chaik	2,972	720	47
2	Ka Li Htaw,	3,355	717	34
3	Hpa Yar Gyi	6,349	1401	31
4	Kan Beit,	5,568	1357	28
5	Let Pan Gwa	3,309	784	36
6	Ta Ka Hleit	3,612	788	24
	Total	**25, 165**	**5767**	**200**

Source: Survey Data, 2022

The data was acquired from farmer households in the six villages indicated above, and all of them are farming, fishing, cultivating vegetation, and livestock, which are all situated in the Twantay Township.

4.4 Survey Results

This study applied descriptive analysis and frequency analysis. The descriptive analysis approach was utilized to illustrate the study's mean, standard deviation on food availability, food access, food utilization and food stability to find out accurate results and outcomes of the study. Frequency analysis is applied to know the demographic characteristics of farmers' households.

4.4.1 Demographic Characteristics of Households

Gender, age, education, the number of children in the households, food production and purchases, income and expenditures, land ownership, the type of cultivation and land area, market access, and other indicators are among the demographic characteristics of farmer households that are covered in the seventeen questions. Through the study's frequency analysis which is displayed in the table below, the demographic characteristics of households were examined.

Table (4.9) Gender, Household Size, Children in Household

No.	Description	Category	Frequency	Percentage (%)
1	**Gender**	Male	106	53.0
		Female	94	47.0
		Total	**200**	**100.0**
2	**Household Size**	1-2 peoples	68	34.0
		3-6 peoples	82	41.0
		7-10 peoples	21	10.5
		More than 10 peoples	29	14.5
		Total	**200**	**100.0**
3	**Children in Household**	No Child	52	26.0
		1-3 Children	103	51.5
		4-5 Children	32	16.0
		More than Five Children	13	6.5
		Total	**200**	**100.0**

Source: Survey Data, 2022

The data are analyzed based on their response of the household. According to the results, there are 106 male respondents (53%) from 106 households and 94 female respondents (47%), respectively, in the total number of households. The majority of responses are men, and they are predominantly farmers. The most of household size in this study are 3-6 peoples that contribute 82 households (41 %). The small household size that comprised of 1-2 family members are 68 households (34%). Then 7-10 people family members are 21 households that are 10.5% of total 200 households. The large household sizes (more than 10 people) are stand (14.5%) with 29 households. As per findings, most of households have 3-6 family members in this study. The majority of 103 (51.5 % of all respondent households) have 1-3 Children. Then, there are 52 households (26 %) is no child in their families. The 13 households (16%) have 4-5 Children and 13 households (6.5%) have more than five children. The most of households have one to three kids in the families.

Table (4.10) Age of Respondent and Age of Household Head

Sr. No.	Description	Age of Respondents		Age of Household Head	
		Frequency	Percentage	Frequency	Percentage
1	18-30	54	27.0	24	12.0
2	31-40	90	45.0	74	37.0
3	41-50	30	15.0	39	19.5
4	51-60	16	8.0	39	19.5
5	Above 60	10	5.0	24	12.0
Total		**200**	**100.0**	**200**	**100.0**

Source: Survey Data, 2022

According to Table (4.10), the age of respondents in 31-40 is the most with 90 respondents (45%). Only 10 respondents (5%) in the over-60 age group participated in the survey. The maximum value in this group for the age of household heads is 75 persons (37%) and this is 31-40 years old group. With 24 families head and (12%), the age groups 18 to 30 and over 60 had the lowest values. As per result, the group of respondents who are between the ages of 31 and 40 made up the majority of respondents, while those above the age of 60 made up the least number of household members in this study.

Table (4.11) Education level of Respondent and Household Head

Sr. No.	Description	Respondent Education		Household Head Education	
		Frequency	Percentage	Frequency	Percentage
1	No Education	24	12.0	10	5.0
2	Primary School	25	12.5	31	15.5
3	Middle School	65	32.5	55	27.5
4	High School	60	30.0	68	34.0
5	Higher Education	26	13.0	36	18.0
Total		**200**	**100.0**	**200**	**100.0**

Source: Survey Data, 2022

In the mention of Table (4.11), the most education level of respondent are 65 members with (32.5%) in middle school group and the 24 respondents with (12%) in

no education. For the household heads education, the majority of household heads are high school level account for 68 households (32.5%). With 24 participants (12%) and 10 members (5%) respectively, the lowest group includes respondents and household heads who have no formal education. In general, the majority of farmers' household heads and respondents had completed middle school or high school.

Table (4.12) Income and Expenditure

Sr. No.	Description	Income		Expenditure	
		Frequency	Percentage	Frequency	Percentage
1	Less than 100000	26	13.0	28	14.0
2	100000-200000	81	40.5	40	20.0
3	200000-300000	37	18.5	24	12.0
4	300000 -400000	36	18.0	72	36.0
5	Above 400000	20	10.0	36	18.0
Total		**200**	**100.0**	**200**	**100.0**

Source: Survey Data, 2022

Table (4.12) stated the result of income and expenditure of farmers' households. If compare to income and expenditure of households, most of 81 households (40.5%) and received 100000-200000 Kyats in income but the majority of households' expenditure are among 300000 -400000 Kyats for 72 households (36%). The expenditure is more than income in farmer households. Main income is mostly agriculture, livestock and few households are small or home business. The average of all households is agriculture. Every household has secondary income activities. Mostly is livestock and few has small or home business. The mean secondary income come from livestock.

Table (4.13) Own Food Production and Food Purchasing

Sr. No.	Description	Own Food Production		Food Purchasing	
		Frequency	**Percentage**	**Frequency**	**Percentage**
1	Up to 20%	48	24.0	39	19.5
2	21% to 40%	75	37.5	50	25.0
3	41% to 60%	35	17.5	27	13.5
4	61% to 80%	17	8.5	56	28.0
5	More than 80%	25	12.5	28	14.0
Total		**200**	**100.0**	**200**	**100.0**

Source: Survey Data, 2022

Table (4.13) stated the result of food production and purchasing of farmers households. The majority production of food is 21% to 40% group with (37.5%) and the major group of food purchasing is 61% to 80% for (28%). The amount of purchasing is superior than the amount of production when compared to the results. As a consequence, some farmers are required to purchase food and they have inadequate food supply for households in Twantay Township.

Table (4.14) General Description about Households

No.	Description	Category	Frequency	Percentage (%)
1	**Type of Farming**	Paddy Farming	42	21.0
		Farming and Fruits	18	9.0
		Farming and Vegetables	46	23.0
		Farming and Livestock	64	32.0
		Farming and Miscellaneous	30	15.0
		Total	**200**	**100.0**
2	**Land Ownership**	Own	165	82.5
		Rent	35	17.5
		Total	**200**	**100.0**

Table (4.14) General Description about Households (Continued)

No.	Description	Category	Frequency	Percentage (%)
3	Cultivation Land Area (Acres)	1-3 Acres	75	37.5
		4-6 Acres	52	26.0
		7-10 Acres	44	22.0
		More than 10 Acres	29	14.5
		Total	**200**	**100.0**
4	Market Access for Farm Production	No Access	-	-
		Access	200	100.0
		Total	**200**	**100.0**
5	Expenditure for Food	21% to 40%	16	8.0
		41% to 60%	43	21.5
		61% to 80%	49	24.5
		More than 80%	92	46.0
		Total	**200**	**100.0**

Source: Survey Data, 2022

Table (4.14), the majority of working households are in the farming and livestock sector, which comprises 64 households (32%), followed by the cultivation farming and vegetables sector, which has 46 households (23%), and the paddy farming sector, which has 42 households (21%). The next main type is farming and miscellaneous cultivation with 30 households (15%), followed by farming and fruits with 18 households (9%) as the smallest group. As a result, famer households are not only doing farming but also doing side businesses as livestock, cultivating vegetables, and planting betel and miscellaneous farming for their food security in Twantay Township. Only a small percentage of households run small or home enterprises; most operate side businesses like raising livestock business. There are 165 households, or 82.5%, of which are landowners who cultivate their own land. However, 35 farm households (17.5%) rent the land from several people. The majority of farm families possess their own land. The majority of the farmer households in the group is 75 households (37.5%) belongs to 1-3 Acres. Following that were 44 households with 7-10 Acres and 52 households with 4-6 Acres, respectively. The smallest group for more than 10 Acres is 29 households (14.5%). As a result, the majority of farmers have 1-3 acres of property. There were 200 farmer households that indicated they had

complete market access for their agricultural output. The farmer households expense the income for the foods are surveyed. 16 households (8%) spend income ranging from 21% to 40%, whereas 92 households (46%) use more than 80% of their income on food. In this situation, the farmer households typically spend more than 80% of their income on foods.

4.4.2 Descriptive Analysis

A total of 200 farmer households in Twantay Township is the target group of this study. The standard deviation is a metric used to express how much a group of data values might vary or be dispersed. In contrast to a high standard deviation, which indicates that the data points are spread across a large range of values, a low standard deviation indicates that the data points tend to fall within a small range of values, also known as the anticipated value. Frequently, the standard deviation is used to assess the accuracy of statistical conclusions. The descriptive analysis employed on the food availability, food access, food utilization and food stability.

Table (4.15) Food Availability for Twantay Township

Sr. No.	Food Availability Items	Mean	Std. Deviation
1	My household can buy all food and meals in this region.	4.12	.767
2	My farming produces adequate food for the whole household.	3.20	.982
3	There are efficient water resources for cultivating crops on my farm.	3.60	.695
4	This region has food stocks for the household.	3.76	.652
5	Climate change is destroying crops on my farm every year.	3.00	.695
6	My household's economic livelihood is reduction this year.	3.84	.815
7	There are loan organizations for the farmers' cultivation.	3.64	.481
8	Enough land to cultivate support to increase the households' income.	3.78	.639
	Overall Mean Value	**3.62**	

Source: Survey Data (2022)

Table (4.15), stated that the food availability factor comprised eight items. According to the results, the overall mean value of food availability is 3.61. The mean value of 3.62 is equivalent to agreeing to the level as frequency. It can be concluded that respondents have a positive perception of the food availability factor. Among these items “My household can buy all food and meals in this region” which has the maximum mean value of 4.12 and there is consensus that the household can purchase all the food when necessary. With a mean value of 3.76, "this region contains food stocks for the household" is the second highest mean value and corresponds to the respondents' household purchasing habits and the availability of food stocks in Twantay Township. On the other hand, “my farming produces adequate food for the whole households.” gained the minimum mean value of 3.20 and affects the level of respondents. According to respondents, Twantay has enough food to feed all households, and farmers have access to necessary agricultural inputs. Most farmers work their own land for farming. In this study, more than 82 percent of farmers are landowners, as stated in the section on demographic characteristics. The supply aspect of food security is addressed by the food availability factor, which anticipates adequate supplies of high-quality food through domestic farm production or import. Access to sufficient resources for obtaining suitable foods for a healthful diet is referred to as food accessibility.

Table (4.16) Food Access for Twantay Township

Sr. No.	Food Access Items	Mean	Std. Deviation
1	My household consumes nutritious foods daily.	3.24	1.179
2	My household has food sufficient for this week.	3.24	.952
3	The price of food increases negatively impacts my household.	4.16	1.049
4	My family's income covers the cost of the meals.	3.16	.722
5	My household is often lacking money to buy supplies.	3.40	1.098
6	My region facilitates the market for agricultural products.	4.12	.589
	Overall Mean Value	**3.52**	

Source: Survey Data (2022)

Table (4.16), stated that the food access factor included six items. According to the results, the overall mean value of food access is 3.52. The mean value of 3.52 is similar to conceding that frequently level. It can be determined that respondents have a positive perception of the food access factor. Among food access items, “The price of food increases negatively impacts my household” which has the maximum mean value of 4.16. Due to current economic conditions in Myanmar are being exacerbated by weaker logistics, increased supply shortages, and rising fertilizer and fuel prices including food price. The food price is frequently rising in the whole nation. The second highest item as “My region facilitates the market for agricultural products” with mean score 4.12. That mean, there are available market to sell farm products of farmers and farmers access is very comfortable to the markets. Conversely, the minimum mean value of 3.16 meant that “My family's income covers the cost of the meals” which the majority of households struggle to find the money to buy food and meals. A fundamental requirement of people is to have access to wholesome nourishment. Having access to enough food for a healthy, active life is known as food security. Foods and beverages that support health, prevent disease, and, if necessary, provide disease treatment are consistently accessible, affordable, and available. This is referred to as nutrition security in all levels in Twantay Township.

Table (4.17) Food Utilization for Twantay Township

Sr. No.	Food Utilization Items	Mean	Std. Deviation
1	My household consumes organic foods and fruits daily.	2.36	.688
2	Protein levels, vitamins, and food quality are essential in my household.	2.84	1.519
3	The cleanliness and sanitization of food are imperative in my household.	3.24	1.454
4	My household is drinking clean water.	2.72	1.375
5	My household eats enough nutritious meals for this week.	3.76	.816
6	My farming use fertilizers and pesticides.	3.72	.761
7	My cultivation environment is safe for the crops.	3.46	.845
	Overall Mean Value	**3.15**	

Source: Survey Data (2022)

Table (4.17), showed that the food utilization factor involved seven items. According to the results, the overall mean value of food utilization is 3.15. The mean value of 3.15 is equivalent to agreeing to occasionally level. It can be demonstrated that respondents have either positive or negative perception on the food utilization factor. Among food utilization items, “my households eat enough nutritious meals for this week” which has the maximum mean value of 3.76 and result out that the farmer families are no hanger and their stomach have sufficient food in this week. Additionally, the minimum mean value for “my household consumes organic foods and fruits daily.” stated has mean score 2.36 because of rarely apply good agricultural practices during cultivation, that effects the consumers might seldom consume organic fruits. Lastly, "my household is drinking safe water," had a mean score of 2.72 and revealed that the majority of households did not use pure water, drinking from pipes, or river water.

Table (4.18) Food Stability for Twantay Township

Sr. No.	Food Stability Items	Mean	Std. Deviation
1	There is no price fluctuation in my region.	2.34	.428
2	Meat and vegetables price are increasing repeatedly.	3.80	1.049
3	The market offers affordable prices for basic foods.	2.84	1.058
4	Beef, pork, and chicken are available to consume and purchase in my family.	3.21	.845
5	My household can easily afford to consume fish and poultry products frequently.	3.40	.851
6	My household can buy enough food at a reasonable price.	2.80	.695
7	Economic instability impacts a household's food security.	4.16	.481
	Overall Mean Value	**3.22**	

Source: Survey Data (2022)

Table (4.18), indicated that the food stability involved seven items. According to the results, the overall mean value of food security is 3.22. The mean value of 3.22 is equivalent to agreeing on frequently level. It can be stated that respondents have a

positive perception of the food stability factor. Among food stability items, the maximum mean value is 4.16 of “economic instabilities impact a household's food security” stated that several things, such as income, employment, race/ethnicity, and not enough money to buy food or when low-income households are food insecure, the risk of food insecurity rises in Myanmar including Twantay Township. The economic stability is the capacity of an economy to sustain prices for goods and services with little price variation. A country's economy needs to be stable in order to foster the conditions necessary for job growth, which is crucial for raising living standards. Additionally, one may rapidly ascertain future financial and economic expectations by assessing a country's economic stability in the whole region of Myanmar. Alternatively, the minimum mean value is 2.4 of “There is no price fluctuation in my region” which stated that price fluctuation is the movement or alteration of a commodity's or group of commodities' prices in a specific market or market region. The price fluctuations that occur over time, given a commodity and market, are essentially price changes.

4.4.3 Assessment of Food Security in Twantay Township

Table (4.19) Food Security Assessment

Sr. No.	Dimension	Mean Value
1	Food Availability	3.61
2	Food Access	3.52
3	Food Utilization	3.15
4	Food Stability	3.22
Overall Mean		**3.38**

Source: Survey Data, 2022

Table (4.19), the overall mean value factors affecting food security is nearly 3.19. It is the level of food security occasionally. It is typically means between “three to six times a year” and “once or twice a month”; and “about once a week.” Households of farmers are struggling to have enough food and nutrition as a regular basis and it is unsustainable for their forthcoming livelihoods. Food availability is the highest mean score among the four factors, with a value of 3.61 in the results. The mean score for food access is the second highest, at 3.52. Then food stability is the

second lowest over all men score with 3.22. Consistent with the findings, food utilization had the lowest mean score, with a value of 3.15. Conversely with other indicators, to have food security, the food utilization and food stability are the most significant factors to consider in this study.

The results show that Food availability had an overall mean score of 3.61. It can be demonstrated that respondents. Food availability can be defined as the degree to which food is accessible to households, both in terms of enough quantity and quality (for example, in nearby markets and shops). It might be challenging to discern between food access and food availability. Farmer households must have access to sufficient quantities of wholesome food of sufficient quality. Production, or how much and what kinds of food are available through locally produced and stored food, can have an impact on availability. Food distribution includes how it is physically moved and there are markets for the farming of farmers in Twantay Township. Besides, farmer households can purchase necessary foods are available in their places.

The mean total score for food access had 3.52. It can be shown that respondents concurred that when a farmer household has the ability to procure food in enough quantity and quality to provide a healthy diet, it is said to have attained household-level food access. To achieve this, households must have access to the resources they need to buy food, in addition to domestic and local food availability. Household resources, food costs, dietary choices, and sociopolitical elements including prejudice and gender inequality are significant drivers of food access. To be able to maintain a healthy, balanced diet, people and households must either be able to purchase enough food or have access to the resources necessary to grow their own food in in Twantay Township.

Continuously, food utilization had the overall mean score with 3.15 and the lowest score in the study. Food utilization is to assimilate the nutrients in the food that is consumed. Food utilization is related to both the quality of the diet and the amount of food consumed. An individual's food intake must be sufficient in both amount and quality to meet not just their basic nutritional needs but also their energy requirements for everyday activities, particularly for earning a living. To achieve their nutritional demands, households' members must not only have access to a variety of meals in suitable quantities, but also be able to consume them and correctly process them. Utilization may be impacted by nutritional value, which refers to the amount of calories, vitamins, protein, and other nutrients that are present in the food that is

ingested (e.g. iron, iodine, vitamin A).The food utilization condition is very poor in the results. That factor might need to consider in this study.

According to findings, food insecurity conditions such as income level, production, food availability in a week may have an impact occurred in Twantay Township. When there is insufficient or no money, inflation currency and to buy food, there is a greater chance of food insecurity.

Lastly, food stability had the overall mean score with 3.22 and the second lowest mean score in this study. Improving the food stability of rural households is crucial because a sizable portion of these individuals reside in rural areas. Food insecurity is a problem in rural regions with various reasons, including rapid population increase, poor agricultural productivity, and a lack of sustainable food security policy, macroeconomic instability, and significant swings in agricultural prices. The key consideration is government need to involve in food price stability and economic constancy.

CHAPTER V
CONCLUSION

5.1 Findings

The food that a person consumes should be adequate and safe, balanced by containing all essential nutrients, and accessible for however long is necessary. It is only possible when all four food availability, accessibility, use, and stability factors are in place. In light of the fact that some areas of the world do not always provide for a person's nutritional needs, a person is only considered to be in a condition of food and nutrition security when the food they ingest is digested by their body.

Farmers make up the majority of household replies, as indicated by the demographics of the households. The respondents above the age of 60 made up the least number of household members, while respondents between the ages of 31 and 40 made up the majority of respondents. The majority of respondents who were farmers and household heads had either completed middle school or high school. Farmer households have more expenses than income. The main sources of income for households include farming, raising livestock, and tiny businesses run out of the home. Agriculture is the average occupation of all households. Every household operates in side businesses. Most families have livestock, and only a few have a small or home business. The typical secondary source of income is livestock. When comparing the outcomes, the amount of purchase is greater than the amount of production. As a result, some households need buy food because they have insufficient supplies for their families. The 29 households have big household sizes (more than 10 persons). In this study, 3-6 family members make up the majority of households. Most families have between one and three children.

The majority of households with working members are in the farming and livestock together, which has 64 households. This is followed by the cultivation farming and vegetables group which has 46 households, and the rice farming sector, which has 42 households. Farming and other cultivation, with 30 households, is the next major category, and farming and fruits, with 18 households, is the smallest. As a

result, farmer households in Twantay Township raise livestock in addition to cultivating for their own food security. There are 165 households, which have land to cultivate and 35 farm households rent the land from various owners. The majority of farming families are landowners. The 75 households in the group are bulk of them who have 1-3 acres for farming. 200 farmer households reported having full access to the market for their agricultural products. Typically, the households of farmers spend over 80% of their income on food. In conclusion, 56% of farmer households express weekly anxieties about food.

According to the results, the factors affecting food security, farmers' households struggle to consistently have enough food and nourishment, which is unsustainable for their future livelihoods. With a value of 3.61, food accessibility has the highest mean score out of the four categories. With a mean score of 3.52, food access ranks second in importance. The second-lowest score 3.22, is for food stability. Food utilization had the lowest mean score, 3.15, which was consistent with the findings. Contrary to other metrics, the study's most important considerations for ensuring food security are food utilization and food stability. Food security is both attainable and sustainable where the economy is stable. Household food security is weak when livelihoods are in risk, as they are in many homes in Myanmar. Analysis of food security must always place a high priority on determining vulnerability in light of sustainable livelihood. This makes sure that the fundamental causes of the vulnerability are treated rather than merely its symptom of immediate hunger. The capacity of the household to generate food and earn money is directly impacted by personal characteristics like education level and health status. Knowledge is linked to the acquisition of cognitive skills that are likely to aid in the generation of revenue and food. Improved cognitive abilities may raise income levels; apply use of meals, and employability through improving decisions regarding the distribution and use of resources and by raising marginal productivity.

A person is only considered to be in a secure food and nutrition situation when the food they consume is nutritionally sufficient and is digested by the body to sustain themselves for development, growth, and disease resistance, which is not the case in many areas of Myanmar. By having a complete understanding of the various food security components and approaches, it is feasible to give efficient and effective food and nutrition support. This approach also emphasizes the necessity of coordination and cooperation between the various partners that comprise the food security network.

When households have reliable sources of income, the economy, health, and education all see improvements.

Improved food storage and preservation would assist reduce food fluctuations throughout the post-harvest period for households who rely on own production for food acquisition. Urban households, which experience the most seasonal swings, should benefit from remunerative employment since it would assist to stabilize consumption. The agriculture systems need to be set up to guarantee the distribution of food from excess to deficit areas. Food price changes are significant. The findings also indicate that a number of households in the nation primarily consume staples that are acquired at low prices, and any change in the prices of staples has negative effects because the same households cannot switch to other food products price controls, the best way to stabilize the prices of staple foods is through strategies.

5.2 Recommendations

All the factors that have an impact on the domestic food supply and the ability to finance food imports are taken into account in the food availability dimension because it normally reflects the supply side. The capacity of individuals, families, or communities in relation to their incomes to pay for the price of food or the land required to cultivate it. The economic, social, and political structures that govern how, when, and where customers can purchase food are referred to as allocation. Food distribution within homes may be uneven based on a person's age and gender. Preference: Social, religious, and cultural customs and values that affect people's preferences for particular protein sources. Food access is to a large extent determined by food prices and household resources. Every household has a limited amount of resources at its disposal, including assets, labour, human capital, and natural resources. The study found the following recommendations:

Domestic food prices, which are often influenced by food supply and overall food demand, will dictate the quantity and quality of food that a household can purchase given its resources. Ministry of Agriculture and Irrigation needs to support sustainable increase in rice production primarily through productivity-driven growth to reduce per unit cost of production and help obtain price stabilization, an increase in per capita income of rural households with greater access to resources and sound macroeconomic policies to gain effectiveness in lowering the rural households' food insecurity could be used to successfully achieve food and nutritional security.

Food security in Myanmar is to the year-round availability of food for the entire country at a price that makes it affordable for every household to eat a sufficient amount and quality of food. Therefore, the goal of national food policy is to achieve food security through self-sufficiency, price stabilization, and an improvement in nutritional status. Developing countries now experience food insecurity. Development efforts in these countries are hampered by their failure to guarantee sustainable food security for all of their inhabitants. Due to the difficulty of ensuring food security, many emerging nations have been unable to handle the issue.

Finally, the government must assist food and agriculture through a number of measures, including financial subsidies to farmers and consumers, market and trade interventions (including customs checks and price control), and general support for agricultural cultivation. The government should promulgate policy which will affect the food environment, the availability of healthy diets, and their cost, have an effect on all stakeholders.

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