EFFECT OF ECONOMIC CRISIS ON HOUSEHOLD FOOD SECURITY IN SRI LANKA

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Research Report No: 258

March 2024

FOREWORD

Food security is crucial in an economic crisis as it directly impacts people's well-being and resilience. Access to sufficient, safe, and nutritious food ensures physical health, productivity, and overall societal stability. During economic downturns, food security becomes a linchpin for social harmony, preventing unrest, and fostering economic recovery by maintaining a healthy and capable workforce. Addressing food security in times of economic crisis is not just a humanitarian necessity but a strategic imperative for sustaining and rebuilding communities.

This comprehensive study, conducted in October 2022, specifically examines the food consumption patterns, food security status, and coping strategies adopted by 1,584 households across Sri Lanka. The findings expose the harsh realities faced by these households, laying bare the profound impact of the economic crisis on their lives. With an average household size of four individuals, the study highlights the disproportionate vulnerability faced by female-headed households, those with no formal education, lactating or pregnant mothers, and members with disabilities. These segments of the population emerge as particularly susceptible to acute food insecurity, demanding targeted and urgent interventions.

The economic crisis, as unveiled by the study, manifests itself in various facets of daily life, with skyrocketing food prices, escalating fuel and transport costs, and a pervasive decrease in income. Migration plans have emerged as a coping mechanism, reflecting the lengths to which households are compelled to go in order to secure sustenance. A staggering 98 percent reported increased food prices, and 57 percent identified high fuel and transport costs as a major drain on their expenditures, emphasizing the dire economic strain.

This report is not just a stark portrayal of the current crisis; it is a call to action. The insights gained ecessitate a coordinated response, one that addresses the immediate needs of moderately and severely food-insecure households. Cash grants and direct food assistance are recommended, with a specific focus on vulnerable sectors and groups. Beyond immediate relief, the report advocates for sustained nutrition interventions, improved healthcare access, and support for the agriculture and livestock sectors. The establishment of a national food security monitoring system and the formulation of medium-to-long-term strategies for food production and income generation are imperative steps towards mitigating the ongoing crisis.

As we absorb the findings presented in this study, let it serve as a catalyst.

Dr. G.G. Bandula
Director/Chief Executive Officer

ACKNOWLEDGEMENTS

EXECUTIVE SUMMARY

Prevailing economic crisis the worst since Sri Lanka's Independence is spinning off food crisis driving households (HHs) into food and nutrition insecurity. In this background, the general objective of the study was to assess the food consumption patterns, food security status, and coping strategies to make timely interventions to restore the food security levels of the HHs. The multi-stage random sampling technique was employed and 1,584 HHs were surveyed using a structured questionnaire in October 2022. Consolidated Approach for Reporting Indicators of Food Security (CARI), Food Consumption Score (FCS), Food Consumption Score Nutrition (FCS-N), Reduced Coping Strategy Index (RCSI), and Livelihood Coping Strategy Index (LCSI) were applied.

The average household size in the study was four individuals, with 81 percent of households led by men. Notably, female-headed households, those with no formal education, lactating or pregnant mothers, and members with disabilities were more vulnerable to acute food insecurity. The economic crisis significantly affected households, with 98 percent reporting an increase in food prices and 57 percent citing high fuel/transport costs as a major drain on their expenditures. Income decreased for 64 percent of the population, leading to food insecurity. Migration plans emerged as a coping mechanism, with 10 percent planning overseas migration.

The economic crisis negatively impacted buying behaviour, with 91 percent of households changing their food purchasing habits. Reasons included increased commodity prices (88%), reduced income (64%), and fuel price hikes (43%). A significant portion (74%) reported not having enough money for essential expenses, and 66 percent faced food supply shortages. High food prices and shortages led to changes in food consumption patterns for 88 percent of households. Many reduced the number of food items cooked (86%) and changed the type of food items used (75%).

Rising food prices and changing consumption patterns resulted in a significant increase in the food expenditure share in households, reaching 71 percent by October 2022. This trend, especially pronounced in certain districts and sectors, left households vulnerable to price fluctuations and income loss. Food security deteriorated, with 46 percent of households estimated to be moderately acute food insecure and 8 percent severely acute food insecure by October 2022. The highest levels of food insecurity were found in the estate sector and certain districts.

According to CARI methodology, Sri Lanka experienced 54 percent of food insecurity. Household food insecurity in urban, rural, and estate sector estimated as 43 percent, 53 percent and 67 percent respectively. More than half of HHs (62%) were at an acceptable level of food consumption according to FCS. Meals predominantly consisted of rice, vegetables, and oil. However, consumption of protein and heme iron rich foods drastically reduced compared to late 2021. According to FCS-N, the majority of estate sector HHs (78%) never consumed heme iron rich foods. Despite acceptable

food consumption scores in all sectors, a significant portion of households (38%) did not consume an adequate diet in October 2022. Female-headed households, Samurdhi beneficiaries, and households with pregnant/lactating mothers or disabled members reported inadequate food consumption. Households adopted food-based coping strategies, with 63.3 percent regularly using such measures. Livelihood-based coping strategies also increased, with 46.7 percent of households applying crisis or emergency strategies, including slashing healthcare and education expenses.

Efforts to encourage home gardening faced challenges, with only 41 percent of households engaging in food crop cultivation. Government employees, despite facing transport difficulties and food security threats, had low engagement in cultivation. While 31 percent of households were registered to receive Samurdhi benefits, inefficiencies in social safety nets were evident. Only 28 percent received assistance during October 2022, primarily in-kind food assistance. Most households (79%) expressed the need for assistance, with cash transfers and food assistance preferred. The report recommends coordinated support for moderately and severely food-insecure households through cash grants or direct food assistance, with a focus on vulnerable sectors and groups. Nutrition interventions, improved healthcare access, and support for agriculture and livestock sectors are vital. A national food security monitoring system, medium-to-long-term strategies for food production and income generation, and import restrictions relaxation are also recommended to address the ongoing crisis.

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LIST OF ABBREVIATIONS

CARI	-	Consolidated Approach for Reporting Indicators
CCPI	-	Colombo Consumer Price Index
CFSAM	-	Crop and Food Security Assessment Mission
DS	-	Divisional Secretariats
ECMEN	-	Economic Capacity to Meet Essential Needs
FAO	-	Food and Agriculture Organization
FCS	-	Food Consumption Score
FCS-N	-	Food Consumption Score-Nutrition
FES	-	Food Expenditure Share
GND	-	Grama Niladari Divisions
HARTI	-	Hector Kobbekaduwa Agrarian Research and Training Institute
HH	-	Household
HIES	-	Household Income and Expenditure Survey
IFAD	-	International Fund for Agricultural Development
IMF	-	International Monetary Fund
IPS	-	Institute of Policy Studies
LCSI	-	Livelihood Based Coping Strategy Index
LIC	-	Low Income Countries
LKR	-	Sri Lankan Rupee
MC	-	Municipal Council
MRI	-	Medical Research Institute
NCD	-	Non-Communicable Diseases
NGO	-	Non-Governmental Organization
RCSI	-	Reduced Coping Strategy Index
SME	-	Small and Midsize Enterprises
UC	-	Urban Council
UNICEF	-	United Nations Children's Fund
USD	-	United States Dollar
WFP	-	World Food Programme

CHAPTER ONE

Introduction

1.1   Food Security

Food and nutrition security is a major concern in agenda of Sustainable Development Goal for 2030 to which countries agreed in 2015. With less than a decade to 2030, the world is not on track to end world hunger and malnutrition, instead, we are moving in the wrong direction (FAO 2021). The report of the State of Food Security and Nutrition in the World 2021 states that economic downturns following the COVID-19 containment measures across the world have contributed to one of the largest increases in world hunger in decades, affecting almost all low- and middle-income countries and can reverse gains made in nutrition. The COVID-19 pandemic being the tip of the iceberg, the pandemic has exposed vulnerabilities looming in our food systems over recent years owing to drivers such as conflict, climate variability and extremes, and economic slowdowns and downturns. Their adverse influence has made high and persistent levels of inequality. In addition, millions of people around the world suffer from food insecurity and different forms of malnutrition as healthy diets are no longer affordable. On the other hand, economic slowdowns and downturns primarily impact food systems through their negative effects on people's access to food, including the affordability of healthy diets, as they lead to rising unemployment rates and a decline in wages and incomes (FAO, 2021).

There are ample definitions for food security. The FAO defines food security as when all people, always, have physical, social and economic access to sufficient, safe and nutritious food, which meets their dietary needs and food preferences for an active and healthy life (FAO 2009). Despite minor lexical variations the common underlying concept of food security is "all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life". This requirement for food security is set in reality where unstable food prices triggered by global scale events such as political instability, climate change and fuel shortages have made the challenge of attaining and maintaining global food security even more complex. The FAO/UNICEF have described food security as a multi-layer concept focusing on four key dimensions; (1) food availability (2) food access, which includes physical and economic access to food, (3) food utilization based on cultural and dietary requirements and (4) food stability, i.e., the stability of its provision (Mc Carthya *et al.,* 2018).

Food availability in a country, region or local area means that food is physically present because it has been grown, manufactured, imported and/or transported there. For example: food is available because it can be found on markets, because it is produced on local farms, land or home gardens, or because it arrives as part of food aid, etc. This is food that is visible and in the area. Food access is the way that different people can obtain the available food. Generally we access food through a combination of home production, stocks, purchase, barter, gifts, borrowing or food aid. Food access is

ensured when communities and households and all individuals within them have adequate resources, such as money, to obtain appropriate foods for a nutritious diet. Access depends on income available to the household, on the distribution of income within the household and on the price of food. It also depends on market, social and institutional entitlement/rights to which individuals have access. Food access can be negatively influenced by physical insecurity such as conflict, loss of coping options, such as border closure preventing seasonal job migration, or the collapse of safety net institutions that once protected people with low incomes. Food utilization is the way people use the food and is dependent on the quality of the food, its preparation and storage method, nutritional knowledge, as well as on the health status of the individual consuming the food (International Federation of Red Cross and Red Crescent Societies, 2005).

The concept of food security is used at both macro level and micro level. At the macro level, it generally refers to food self-sufficiency of a nation, but it does not pay adequate attention to disparities of food distribution amongst households in an economy. Household food security is the application of this concept at micro level. The measurement of household food security is based on self-reported individual responses (scale values) received in an interview. A household is considered food secure if it can acquire nutritive food needed by its members even in bad times (Pinstrup-Anderson, 2009).

In the COVID 19 pandemic, Sri Lanka has been experiencing increasing food prices due to internal and external shocks. A price shock can disrupt the "four pillars" of food security. It interrupts the different levels of supply chain, upstream and downstream. It will affect food and nutrition security of household in different sectors. Hence, this study is an attempt to assess the effects of high food prices on food security level at urban, rural and estate households to understand present buying behaviour, change in consumption and coping strategies to make proper interventions with suitable food safety net programmes.

1.2   Price Effect on Food Consumption

Food prices are a primary determinant of consumption patterns and is a primary factor when deciding on a purchase. As Sri Lanka depends largely on imports when global food prices increase, and the fuel crisis severely affected the economy. The Sri Lankan economy recently faced the worst economic crisis since its Independence. With the depreciation of the Sri Lankan Rupee against the USD, prices of all goods and services had increased. Food inflation rates had shown an increasing trend since April 2022 with the highest rate recorded in September (95%). This situation affected the food consumption pattern of Sri Lankan people, particularly the lower income group. According to the WFP situation report, September 2022, "about 6.7 million people are not consuming an adequate diet and 5.3 million people are reducing the number of meals partaken during the day while more than 60 percent of families are eating less, cheaper, and less nutritious food".

Food prices also began to spiral in 2021 due to bottlenecks in supply chains, soaring transport costs, and other disruptions caused by the COVID-19 pandemic. Furthermore, the war in Ukraine, involving two of the biggest producers in agriculture and staple cereals globally, is disrupting supply chains and further affecting global grain, fertilizer and energy prices, leading to shortages and higher food price inflation. On top of this, the growing frequency and intensity of extreme climate events are proving to be a major disrupter of supply chains, especially in low-income countries (FAO, IFAD, UNICEF, WFP and WHO, 2021).

The report on the state of food security and nutrition in the world for 2022 has brought to light several concerning trends. One of the most prominent issues highlighted is the significant increase in global food and energy prices, reaching unprecedented levels. This surge in prices has had far-reaching implications for various aspects of the global economy. Firstly, the rise in food and energy prices has led to a reduction in global economic growth prospects for the year 2022. The elevated cost of these essential commodities has put pressure on economies worldwide, affecting industries, consumers, and governments alike. One of the critical concerns arising from this price surge is the cost of maintaining a healthy diet. As food prices continued to rise throughout 2021 and into 2022, the affordability of nutritious foods has become a significant challenge for many. By December 2021, the global consumer food price index (food CPI) had increased by 11 percent compared to December 2020, reflecting the general upward trend in food prices. Given this trend, it is likely that the prices of nutritious foods have also followed suit, making a healthy diet even less accessible for a significant portion of the population. This is particularly problematic as it exacerbates global food insecurity and nutrition issues. Furthermore, the report points out that global extreme poverty has increased, and income inequality has widened. These trends are intertwined with the rising food prices, as those who were already struggling to afford a healthy diet have seen their affordability gap grow wider due to increased prices and reductions in income.

In the Sri Lankan context, the cost of food in Sri Lanka increased to 85.60 percent in October of 2022 over the same month in the previous year. Prices of most food items have been on a steady rise since the last quarter of 2021 and reached a new record high in September 2022, with the year-on-year food inflation rate at nearly 95 percent.
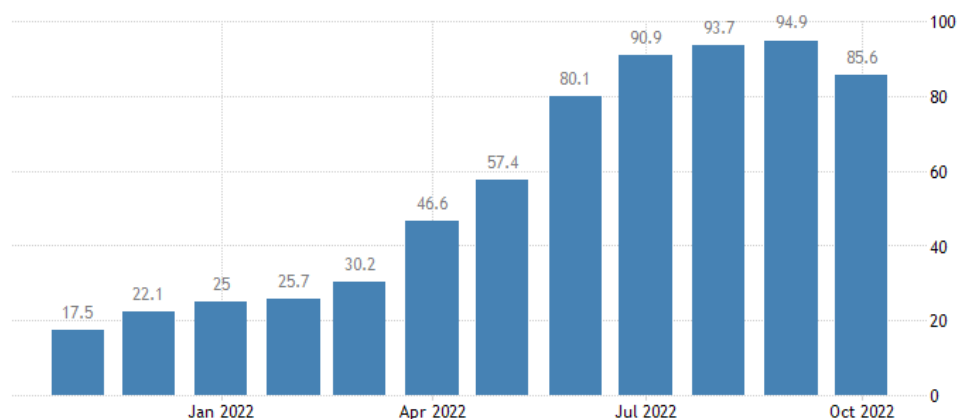
Source: Department of Census and Statistics - Sri Lanka, 2022.

Figure 1.1: Food Inflation in Sri Lanka

Domestic prices of rice, the country's staple, have been increasing since the last quarter of 2021 and reached unprecedented levels in July 2022. The price spikes are associated with inflationary pressure and tight market availability, due to the sharply reduced 2022 main "*Maha*" production. Prices of wheat flour, totally imported, more than tripled their year-earlier levels and were at record levels in July 2022, reflecting the depreciation of the national currency and increasing trends in the international markets. Similarly, prices of a wide range of imported basic food items, including sugar, milk powder, and onion, and locally produced chicken meat, eggs, and coconut oil, have generally increased since October 2021 and reached, in many cases, record or near-record levels in July 2022. Chicken prices were 90 percent higher year on year in July 2022, while milk powder (Lactogen-1) increased by more than 200 percent compared to the same month the year before. Reflecting increased food prices, reduced income opportunities, poor harvests, and disruptions to the food supply chain, the food and nutrition security of households have deteriorated in the first six months of 2022 (Special Report - FAO/WFP CFSAM to Sri Lanka, 2022).

1.3   Safety Net Programmes for Vulnerable Groups

The term social safety net is used in a broader context to mean any programme that benefits individuals or families. Social safety net programmes protect people from the impact of economic shocks, natural disasters, and other crises. It helps reduce poverty, increase economic mobility and strengthen the national economy. Social safety net programmes are key social protection programmes in many developing and least developed countries that provide income support to poor people or raise income above a subsistence threshold. Safety net programmes that function in Sri Lanka are mainly conducted by the government sector and by the private sector.

Sri Lanka has several social security schemes in place targeting different groups. However, the benefits given through some of these schemes are inadequate for the people to survive in the current economic and social contexts, and therefore need to be increased. Even though it may be difficult to introduce more efficient or newer

schemes due to limited funding available at present, there is a lot the authorities can do to increase the efficiency of the existing ones. Above all, these schemes need to be implemented effectively, targeting the right groups. The main issue highlighted through various research is the need to identify the correct target groups in poverty alleviation programmes aiming to give some income support to people.

Due to the soaring cost of living amid rising inflation, the Government is considering expanding its social safety net to relieve low-income families and other vulnerable groups in society. The government is currently planning to increase the allowances provided to 'Samurdhi' beneficiaries and other vulnerable groups such as kidney patients, disabled persons, and the elderly. It also plans to provide relief to those who are not covered under the existing social safety net programmes for at least the next three months. The Government sought to identify certain vulnerable groups who had not been registered under any of the existing cash transfer programmes but would require Government assistance in the near term due to the prevailing conditions. As per data published by the Annual Report, Ministry of Finance (2020), Sri Lanka had spent Rs. 131.9 billion in 2020 on social safety net programmes. The Samurdhi programme is the largest social safety net programme in the country, providing cash transfers and various empowerment programmes that include rural infrastructure, livelihood support, social development, housing programmes, and microfinance programmes through Samurdhi banks. The recent decision by the Government to expand its social safety net is a step that addresses the concerns raised by the International Monetary Fund (IMF) in its Article IV consultation report, where it highlighted that Sri Lanka's social safety nets should be strengthened by increasing spending, widening coverage, and improving targeting in order to mitigate the adverse impacts of macroeconomic adjustment on vulnerable groups. Some leading private sector companies and NGOs launched safety net programmes to support the country's most vulnerable communities amidst the ongoing economic crisis.

1.4   Problem Statement and Justification

Since late, the Sri Lankan economy is facing the worst economic crisis since Independence. With the depreciation of the Sri Lankan Rupee against the USD, the prices of all goods and services have increased. Food inflation rates have shown an increasing trend since April 2022 with the highest rate record in September (95%). The food and nutrition security of households deteriorated in the first six months of 2022, underpinned by a range of converging factors, including poor harvests, rising food prices, reduced income opportunities as well as market and food supply chain disruptions.

The increase of farm gate prices, impact of the Covid 19 related supply chain disruptions, growing uncertainty in food supply chains, the hoarding behaviour of different actors in food supply chains, ban on imported chemical fertilizer (imposed on April, 2021) induced poor harvest in two consecutive seasons, reduced import of food grains, Oligopsony behaviour of the commodity markets, global food price hikes, increasing demand and gradual depreciation of the local currency are the root causes

for high food prices. Regarding food inflation, Sri Lanka belongs to the few highest food inflation countries in the world.
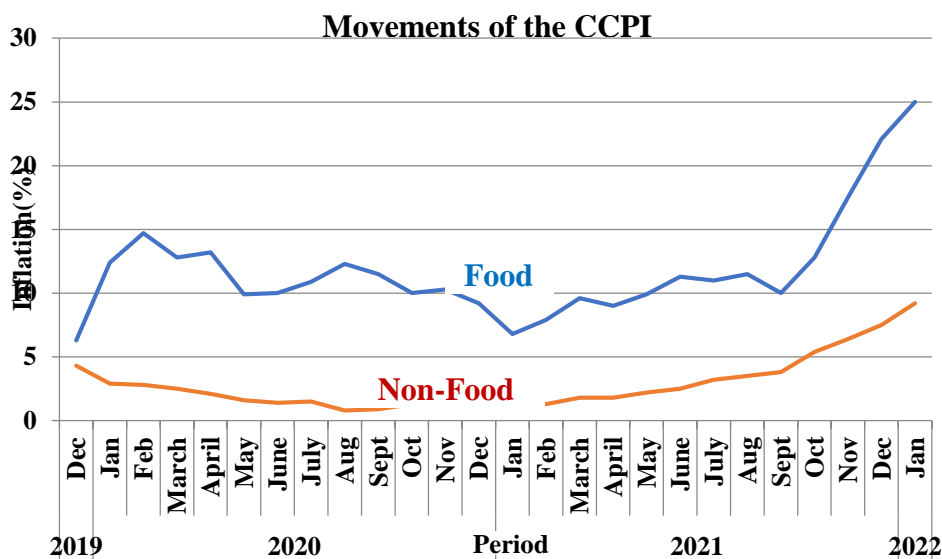
Source: Department of Census and Statistics, 2022

Figure 1.2: Food & Non-Food Inflation Sri Lanka

High and volatile food prices have a detrimental impact on the poor and vulnerable consumers in a country, leading to increased malnutrition, especially among young children, and deepening poverty. For those who allocate a significant portion of their budgets to food, this crisis results in a severe reduction in their purchasing power, pushing households into poverty and further impoverishing those who were already struggling.

Impoverished households employ various coping mechanisms to deal with these adverse shocks. These strategies may include relying on family assistance, selling off assets, borrowing money, or reducing their food and nutrient intake in the most dire circumstances. It is important to note that these coping mechanisms can have both short-term and long-term consequences for a family's well-being and overall livelihood.

Despite increasing food prices, the income of the people has gone down. Recent research found that the income levels of the poor do not show any increase during the past two years in the Covid pandemic, poverty levels have increased and the emergence of new poor (World Bank, (2021), UNICEF (2020), FAO (2021), Kathairmalainthan (2021)). Governments of different countries usually devise measures to prevent and mitigate the adverse effects of food price upsurges. These could be in the form of targeted policies and implemented programmes such as ensuring stable prices through tax reduction (import tariffs and sales taxes), subsidies on essential items, export restrictions and imposition of bans, and efforts to boost domestic food production (Anríquez *et al.*, 2013). Social protection and safety nets

such as food distribution, direct cash transfers and the use of vouchers or food stamps are also common strategies for cushioning the excruciating effects of price shocks on the wellbeing of the poor and vulnerable population.

However, little empirical knowledge is available about the potential impacts of food price spikes on food consumption (real value of food, calories, and dietary diversity) and the economic welfare of households. Such information is crucial for developing policies and programmes targeting the improvement of the well-being of households in the country.

The study therefore seeks to address the following specific questions:

How do food commodity price spikes affect household food security? How has it changed the consumption pattern of different households? Can participation in targeted safety nets substantially enhance food consumption and the economic welfare of the households? Findings from this study can provide helpful information for redesigning existing policy actions and programmes or for the introduction of new ones for improved living conditions in Sri Lanka. Policymakers, therefore, need evidence-based research and policy recommendations that can support their efforts to take proper interventions with suitable food safety net programmes.

There are many significant differences in food consumption patterns, especially geographical, urban, rural, and estate sectors. The majority of the people in the estate sector show a lack of access to adequate and healthy foods. Further, due to the westernization of the diet in the urban and rural sectors, there is a tendency for undernutrition to increase in those sectors as well. Considering the traditional Sri Lankan diet, there is a tendency to shift from cereal consumption to meat, fish, dairy products, and fast foods and processed foods. These transformations pose a great threat to the future food security and sustainability of Sri Lanka. Moreover, the allocation of most of the per capita income to non-nutritious consumption has led to a sizeable increase in chronic diseases and non communicable diseases (NCDs).

Ratnasiri et al. 2012 suggested carrying out a study with a more disaggregated level of households at various income deciles within each sector. Kalkuhl et al. (2013) highlighted the need to examine the linkage between food price shocks on food consumption variety among households. Food price spikes can also directly influence expenditure on non-food items such as health, kerosene, vitamin supplements, insecticides, mobile phone recharge cards, matches and fuel/transportation expenses, among others. This may result in a decline in the overall welfare of the households. Governments of different countries usually devise measures to prevent and mitigate the adverse effects of food price upsurges. These could be in the form of targeted policies and implemented programmes such as ensuring stable prices through tax reduction (import tariffs and sales taxes), subsidies on essential items, export restrictions and imposition of bans, and efforts to boost domestic food production (Anríquez *et al.,* 2013). Social protection and safety nets such as food distribution, direct cash transfers and the use of vouchers or three food stamps are also common

strategies for cushioning the excruciating effects of price shocks on the wellbeing of the poor and vulnerable population.

After the year 2020, food prices of all essential food items have increased significantly. Most of the literature revealed that rising food prices have a significant impact on food and nutrition security of various categories of households. It pushes vulnerable households further into poverty and weakens their ability to access adequate and healthy foods. High prices affect especially to those who spend most of their budgets on food. This crisis leads to severe erosion of purchasing power with households dragged into poverty.

These vulnerabilities provide a rationale for this study. In the above circumstances, it is essential for government policymakers to analyze the consumption patterns of consumers in the country due to food price upsurges and how impacts on food and nutrition security for households in different sectors. Findings from this study can provide helpful information for redesigning existing policy actions and it will be able to provide a more targeted policy inference.

1.5 Objectives

1.5.1 General Objective

To assess the effects of the economic crisis on food security levels in urban, rural and estate households to understand the prevalent buying behaviour, alterations in consumption behaviours and coping strategies to make effective interventions with suitable food safety net programmes.

1.5.2 Specific Objectives

I. To explore household food consumption patterns amidst an economic crisis in the country

II. To assess the effects of the economic crisis on household food security and nutrition

III. To investigate coping strategies adopted by households in response to economic crisis

IV. To suggest strategies to mitigate the vulnerability and shape food safety nets effectively.

CHAPTER TWO

Conceptual Framework

Food security is a function of availability of adequate food in terms of quantity and quality and the people's ability to afford at all times. When one or more elements of the definition of food security are missing, shares of population slide into food insecurity. While, nutrition security concerns also aspects of food utilization and is a function of a broader set of factors.

2.1   Key Variables

The conceptual perspective of this study derives from Kalkuhl *et al.* (2013); Sassi (2015a, b), in their work on the link between food price upsurges and its short-term impacts on food and nutrition security. The literature has identified two major pathways through which price shocks could influence household consumption and food-based coping strategies. In the short term, this could be through (i) real income effects and (ii) substitution effects. The effects could be mixed depending on whether the household is a net-buyer or net seller of food. For a household that is a net consumer of foods such as staples, a sharp rise in staple prices would reduce the real income of the household, all else equal. The shrink in real income may translate to a reduction in the real value of food purchased or consumed and ultimately to a reduction in the total calorie intake of the household. This relates to the income effects of price change.

In response to the price hike, a household may transit from the more expensive staple to a less expensive substitute. This relates to price/substitution effects. Depending on the caloric contents of substituted staples, escalated prices and the accompanying reduction in real income may even lead to increased consumption of staples and calories. This is especially true if energy-dense staple alternatives become cheaper, and/or comprised income makes consumption of non-staple foods or non-food items unaffordable for the households whereas the substitution effects may prevent a reduction in calorie intake. It might reduce the consumption of high-quality foods that could have nourished households with essential micronutrients required for normal body functioning, growth and development. This highlights the need to examine the linkage between food price shocks on food consumption variety among households.

Food price spikes can also directly influence expenditure on non-food items such as health, kerosene, vitamin supplements, insecticides, mobile phone recharge cards, matches and fuel/transportation expenses. This may result in a decline in the overall welfare of the households. Magnitude of the impacts of food price shocks and associated real income reduction can be moderated by the socio-economic characteristics of households and whether households are part of safety nets or not.

The framework consists of three blocks: the food economy, the household context, and the confounding factors. At the bottom of the food economy part of the diagram,

the households' assets consist of five forms of capital: natural, human (labour force and knowledge), financial, physical, and social. This resource endowment defines the set of productive activities that a household can pursue to realize its needed income. The income from these activities, integrated with public and private transfers or loans, determines a household's total income availability. The household's assets can also be sold to mitigate short-term food insecurity.

Household activities may include food production, cash crop production, and non-agricultural activities. The food produced can be partly consumed for subsistence and partially sold on the market where the food price is set. These two parts of the household's production contribute to food availability in combination with domestic food stocks, commercial food imports, and food aid. Food availability influences the food price which determines the market purchases that the household can support with its income. Food access depends on the food consumption level. Household food access does not directly influence individual food and nutritional status. The latter depends on the household context. Individual food and nutritional status depend on three major factors: intra-household dynamics, which affect the distribution of food within the household; health status; and care behaviours.

These aspects are also affected by coping strategies that households adopt to deal with insufficient food access in the short term. These strategies include, eating less preferred food, limiting portion size, or skipping meals. Turning to the intra-household distribution, Pinstrup-Andersen (2009) indicates two reasons why household food security may not assure food security for all its members: the ability to acquire sufficient food may not translate into actual food purchases, and the allocation of food among household members may not be based on the needs of each member. Food and nutrition security is a dynamic concept. It has a feedback effect on human resources affecting labour productivity and the potential to earn household income. This effect introduces the dynamic aspect of food security, which is represented by its stability pillar. The existing empirical studies indicate that such strategies include reducing food consumption, switching to substitutes, adopting various measures to ease food consumption, and engaging in new economic activities. The choice of a coping strategy depends on the resource profile of the household, knowledge and perceptions of the members of the household on future consequences of strategies, the nature of the external environment, technical, biophysical, social and political aspects within which the household operates, and the degree of the crises as perceived by the households in terms of changing variables of the external environment. Therefore, it can be argued that the effectiveness of household coping strategies will be determined by the appropriateness of the context-specific strategy/strategies chosen by the household (*i.e.,* from among several alternative strategies available for them). Another view is that different strategies have different short-term and long-term effects on the sustainability of households. Consequently, policymakers should comprehensively understand the nature and diversity of strategic responses adopted by various vulnerable groups.
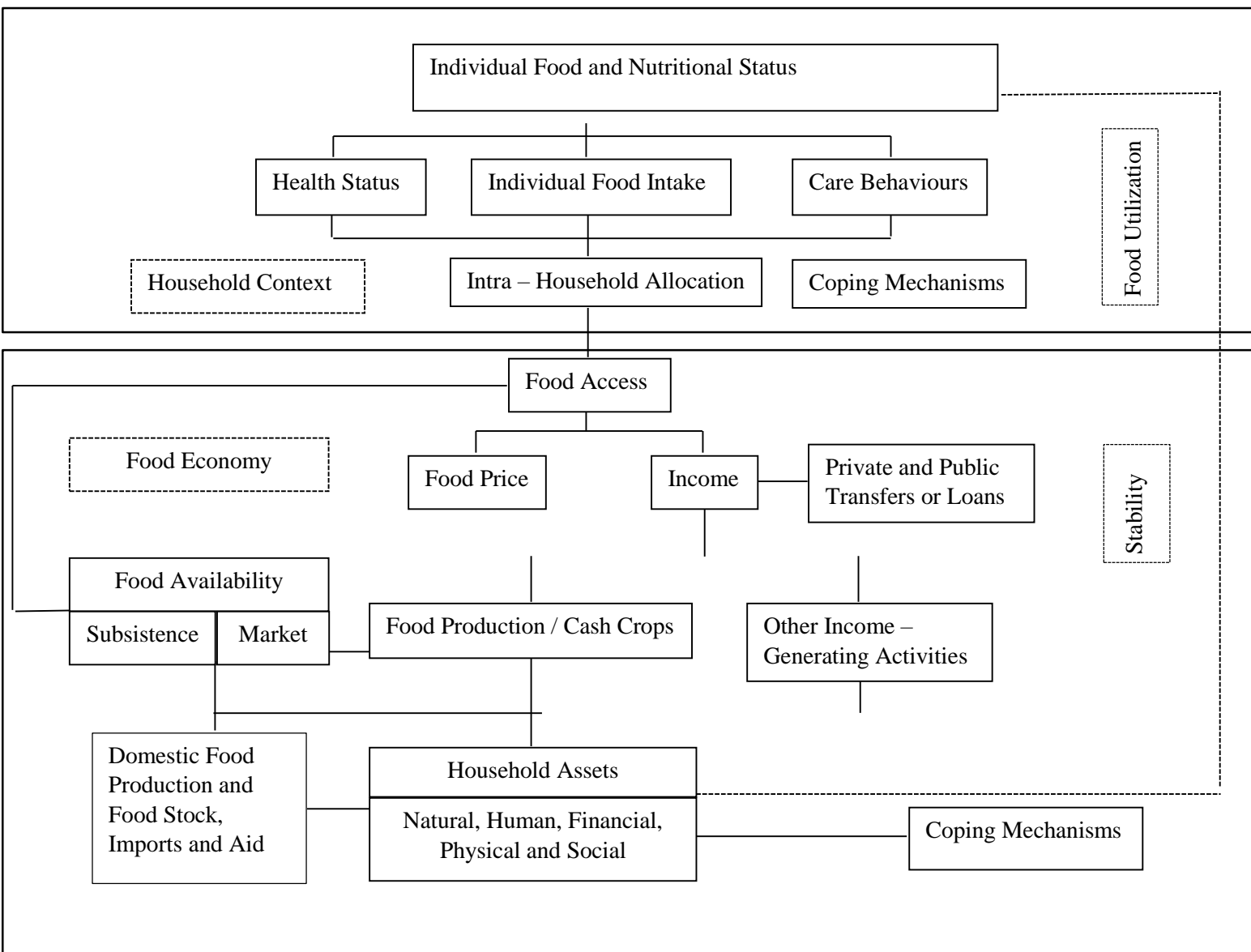
Figure 2.1: Authors' Own Work Adopted from Kalkuhl et al., (2013); Sassi (2015a, b)

Figure 2.1: Conceptual Framework

CHAPTER THREE

Methodology

3.1   Introduction

This chapter presents an outline of research methods that were deployed in the study. Here, it describes information on the operationalization of variables in the research objectives. The research approach and design that was chosen, study location and sampling, data collection (instrument for data collection, validation of the questionnaire and methods of data collection) and data analysis techniques have been widely explored. Consequently, the Consolidated Approach for Reporting Indicators of Food Security (CARI) Console has been illustrated while exploring the Food Consumption Score (FCS), Food Consumption Score-Nutrition (FCS-N), Reduced Coping Strategy Index (rCSI)/Food Based Coping Strategy Index, Livelihood Based Coping Strategy Index (LCSI), Food Expenditure Share and Overall Food Security Classification.

3.2   Research Approach and Design

A descriptive survey design that blends quantitative and qualitative data to unveil in-depth knowledge of a phenomenon was used and it serves best in answering the questions and the purposes of the study. Descriptive research is one in which a group of people or items is studied by collecting and analyzing data from only a few people or items considered representative of the entire group of people or items. That means, only a part of the population is studied, and findings from this are expected to be generalized to the entire population (Nworgu, 1991).

3.3   Study Locations and Sampling

The study focused on identifying food consumption patterns and assessing food and nutrition security at HHs to determine their perceptions and coping strategies towards effects of economic crisis. Accordingly, 17 districts (Colombo, Gampaha, Kalutara, Kegalle, Kandy, Kurunegala, Galle, Ratnapura, Anuradhapura, Puttalam, Matara, Hambantota, Ampara, Jaffna, Monaragala, Nuwara Eliya, and Badulla) were selected based on urban, rural and estate sector throughout the country to reach the study locations.

Calculation of the exact sample size is an important part of research design. It is essential to understand that different study designs need different methods of sample size calculation and one formula cannot be used in all designs (Charan and Biswas, 2013). Accordingly, the sample of 1584 HH units were selected through the Multi-Stage Random sampling technique.

3.3.1 Sample Selection

The sample in this study was HHs drawn from an accessible population. A sample from total HHs in Sri Lanka representing urban, rural and estate sectors was chosen. A household may comprise a single member or multiple members. The former is a unit where a person lives by himself and makes separate provisions for his food, either cooking by himself or purchasing. A multi person household is a group of two or more persons that live together and have a common arrangement for cooking and partaking food (DCS, 2016).

Urban sector: Households in an area governed by either Municipal Council (MC) or Urban Council (UC) is considered.

Estate Sector: Households in plantation areas, which are more than twenty acres of extent and having not less than ten residential labourers, are considered.

Rural Sector: Households that do not belong to the urban or estate sectors described above are considered.

According to the report of 'The Census of Population and Housing of Sri Lanka (2012)', there have been 5,251,126 HHs in Sri Lanka representing urban (913,178), rural (4,114,979) and estate sector (222,969) HHs. Accordingly, the sample was selected with a precision of plus or minus 5 percentage (margin of error) and a 95% confidence level. This means, in this case, there is a 95% chance that the real value is within ±5% of the measured/surveyed value. To obtain the optimum sample for given precision and confidence level, the estimated prevalence (p) considered as 50% for the sample calculation. The approximate sample size needed in each stratum was then estimated using the following formula:

p)] / d^2 = 1.96^2 * [p * (1-p)]/ 0.05^2

In this formula,

p = the estimated prevalence of food insecurity

d = the desired precision (0.05)

Z = the z-score corresponding to a 95% confidence interval (1.96)

Here, districts have been selected to represent more than 60% of the total population in different strata which are urban, rural, and estate sectors. Then districts representing the highest number of HHs in each sector were selected as the first stage. In the second stage, Divisional Secretariats (DS) with the highest number of HHs in each district were selected. Next, Grama Niladari Divisions (GND) were chosen randomly, and finally, each HH was selected randomly to achieve the sample size. In this whole process, when selecting the DSs from districts and GNs from DSs proportionate allocation was applied. Anyhow, when doing such a process, the

research team had to make some adjustments to obtain a representative sample. Therefore, disproportionate stratified sampling designs through weighting had to be applied to the multi-stage random sampling technique (Tracy and Carkin, 2014). The distribution of the selected sample in each district is clearly described in the table below.

Table 3.1: Sector-wise Distribution of the Sample Households

Sector	Selected Districts	Equal Allocation	Proportionate Allocation	Sample Size (HHs)
Urban (18%)	Colombo, Gampaha, Kandy	384	78	**462**
Rural (78%)	Kurunegala, Kaluthara, Galle, Ratnapura, Anuradhapura, Kegalle, Puttalam, Matara, Hambantota, Ampara, Jaffna, Monaragala	384	335	**719**
Estate (4%)	Nuwara Eliya, Badulla, Ratnapura, Kandy	384	19	**403**
Total		1152	432	**1584**

Table 3.2: Distribution of the Sampling Districts

Sector	Districts	Sample size
Urban	Colombo	357
	Gampaha	71
	Kandy	34
	Sub total	**462**
Rural	Kurunegala	120
	Kalutara	80
	Galle	69
	Ratnapura	68
	Anuradhapura	63
	Kegalle	58
	Puttalam	54
	Matara	52
	Hambantota	45
	Ampara	40
	Jaffna	35
	Monaragala	35
	Sub total	**719**
Estate	Nuwara Eliya	213
	Badulla	86
	Ratnapura	56
	Kandy	48
	Sub total	**403**

3.4   Field Team Mobilization and Training

The data collectors comprise of individuals from the HARTI research team and the development officers who have been attached to the Ministry of Public Administration, Home Affairs, Provincial Councils and Local Government based on availability at the time of field data collection. The HARTI research team conducted three workshops in September 2022 in collaboration with the WFP for familiarisation of the purpose of the study, the content of the questionnaire, and other data collection tools.

3.5   Validation of the Questionnaire

The questionnaires designed for the study were subject to a validation process for face and content validity. According to McBurney (1994), face validity is the idea that a Test should appear superficially to Test what it is supposed to Test and content validity is the notion that a Test should sample the range of behaviour represented by the theoretical concept being Tested.

In the validation process of this study, the questionnaires were given to some technical experts to ascertain their appropriateness and adequacy. Accordingly, rephrasing of some questions was done to clarify the questions and more appropriate alternative response choices were added to the closed-ended questions to provide for meaningful data analysis (Burns and Grove 1997).

Having validated the two questionnaires, a pre-test was carried out on them using 25 respondents from face-to-face interviews with the aid of the Mobile App called "KoboToolbox". This was done to see how the respondent would react to the questionnaires, whether the items/questions were clear enough and easily understood, whether there was the need to include more items/questions in certain areas, whether there were some items/questions to which they would not like to respond and to determine the workability of the proposed method of data analysis for the study. From the pre-test, the researchers could understand the ambiguity of some items/questions and so had to modify it to the level of the questionnaires.

3.6   Methods of Data Collection

3.6.1   Primary Data Collection

Following pre-testing and necessary adjustments, the questionnaires were directly administered to the selected sample for the study. Demographic and socio-economic information, coping strategies, and food intake data were obtained through interviewer-administered questionnaires, the seven-day food recall method, and the seven-day food consumption record method. Additionally, expenditure data for non-food items was collected on a monthly basis. To ensure uniformity, all data related to food consumption and purchases were discounted on a monthly basis.

Furthermore, key informant interviews were conducted with officials and experts in the sector. These interviews were aimed to gather information about the current safety net programmes and gain insights from knowledgeable individuals within the field.

3.6.2 Secondary Data Collection

The study used the national Household Income and Expenditure Survey data of 2019 as baseline data. In addition, secondary information was gathered through research reports, journals and newspaper articles.

3.7 Operationalization of Variables in Objectives

3.7.1 Objective 1: To explore household food consumption patterns amidst an economic crisis in the country

Table 3.3: Description of Variables

Variable	Meaning	Measuring
Number of servings and quantity of intake per day by HHs	To understand the HHs level average food servings and quantity	A quantitative variable and will be measured as frequency and quantity (grams) per person using 7 days recall
HH total food budget per month	To understand the average HH expenditure on fulfilling the food needs of HHs	Quantitative data and measured in monetary value (LKR)
HH total non-food budget per month	To understand the average HH expenditure on non-food items of HHs	Quantitative data and measured in monetary value (LKR)
Frequency of food purchase	To understand the Frequency of food purchase	Discrete data
Place of purchase/ obtain	To measure HH decision of place of purchasing/ obtain	A qualitative data

3.7.2 Objective 2: To assess the effects of the economic crisis on household food security and nutrition

Food Consumption Score (FCS)

The Food Consumption Score (FCS) is an index that aggregates household-level data on the diversity and frequency of food groups consumed over the previous seven days, which is then weighted according to their relative nutritional value. The formula below precisely explains how the FCS is calculated.

$FCS = a_{\text{Cereals, grains, roots and tubers}} \times x_{\text{Cereals, grains, roots and tubers}} + a_{\text{Legumes / nuts}} \times x_{\text{Legumes / nuts}} + a_{\text{Milk and other dairy products}} \times x_{\text{Milk and other dairy products}} + a_{\text{Meat, fish and eggs}} \times x_{\text{Meat, fish and eggs}} + a_{\text{Vegetables and leaves}} \times x_{\text{Vegetables and leaves}} + a_{\text{Fruits}} \times x_{\text{Fruits}} + a_{\text{Oil/fat/butter}} \times x_{\text{Oil/fat/butter}} + a_{\text{Sugar, or sweets}} \times x_{\text{Sugar, or sweets}}$

Where, FCS Food Consumption Score,

x_i Frequencies of food consumption = number of days for which each food group was consumed during the past 7 days (7 days was designated as the maximum value of the sum of the frequencies of the different food items belonging to the same food group)

a_i = Weight of each food group

Table 3.4: Food Groups and Respective Weights:

Food Item	Weight
Cereals, grains, roots and tubers	2
Legumes/ nuts	3
Milk and other dairy products	4
Meat, fish and eggs	4
Vegetables and leaves	1
Oil/fat/butter	0.5
Fruits	1
Sugar or sweet	0.5
Condiments	0 (therefore not considered in the analysis)

Source: WFP, 2020

Food Consumption Score –Nutrition (FCS-N)

FCS-N aims to identify the percentage of households in which diet included protein, iron and vitamin A during the immediate seven days before the survey. Assessment of intake of these nutrients is critical as it directly affects the risk of wasting, stunting and Anaemia, which have long been identified as health concerns of the Sri Lankan population.

Consolidated Approach for Reporting Indicators of Food Security (CARI) Console

CARI is an approach used to aggregate different food security indicators into one index to report on the population's overall food security status. The Food Security Console (or CARI console) is the final output of the CARI, it presents the food security indicators into a summary table and distributes the percentage of the population for each indicator based on a specific cut-off point. The console itself provides a clear snapshot of the rates of different types of a population's food security levels at a quick glance.

The CARI assesses availability and access to food by measuring the Current Status of household consumption. The CARI measures the ability of a household to stabilize consumption over time by measuring the Coping Capacity through economic vulnerability and livelihood coping strategies.

Constructing the CARI Console

The CARI methodology is designed to be used for WFP food security assessments which aims to estimate the number of food insecure households in a target population and identify the profile of food insecure population. The method is suitable for national and regional assessments, as well as more specific locations, such as refugee settlements. The CARI console requires data sourced entirely from a single household-level survey. Suitable survey tools include standard WFP assessments (including Comprehensive Food Security and Vulnerability Analyses, Emergency Food Security Assessments, Essential Needs Analysis and Comprehensive Food Security Monitoring Systems) and some non-WFP surveys (for example, Multi-Sectoral Needs Assessment and Living Standards Measurement Study). The inclusion of CARI questionnaire modules in light food security monitoring systems is encouraged.

Indicators Needed to Measure the CARI

The survey tool must generate an acceptable minimum combination of food security indicators to construct the CARI console. The CARI combinations have been determined to be adequate for measuring food security. Each grouping should contain two indicators to measure the Current Food Consumption (i.e. Food Consumption Score and reduced Coping Strategies Index); at least one indicator measuring economic capacity (either the ECMEN or FES indicators); and, the Livelihood Coping Strategies – Food Security (LCS-FS) indicator. Each combination contains sufficient information for establishing the household's level of food security.

Accordingly, the indicator combination of Current Status measured by FCS and rCSI, Coping Capacity measured by FES and LCS-FS were used for CARI measurement. Additionally, Food Expenditure Share was also used as a Coping Capacity indicator.

3.7.3 Objective 3: To investigate Coping Strategies Adopted by Households in Response to Economic Crisis

In achieving the above, the research team investigated both food-based coping strategies and livelihood coping strategies adopted by households in rural, urban, and estate sectors.

Food Coping Strategies

The consumption-based coping strategy index, and reduced coping strategy index (rCSI) measures the stress level experienced by a household during food shortages by assessing the frequency of adoption of the following coping mechanisms.

    I.   Rely on less preferred and less expensive food
   II.   Borrow food or rely on help from relative(s) or friend(s)
  III.   Limit portion size of meals
  IV.   Restrict consumption by adults for small children to eat
   V.   Reduce the number of meals eaten in a day

Each Food Coping Strategy is assigned a weighted value and accordingly, the above strategies possess 1,2,1,3 and 1 respectively.

Livelihood Coping Strategies

Livelihood Coping Strategies Indicator (LCSI), sometimes referred to as asset depletion strategies. The livelihoods-based coping strategy index (LCSI) is used to understand the longer-term coping capacity of households and its impact on the said variables. Examining the responses of households to food shortages offers valuable insights into their current adaptive capacities and sheds light on their potential for future adaptation.

Households are asked if they had to engage in a number of activities due to not having enough food or money to buy food during the past 30 days. These strategies are then ranked into stress, crisis, and emergency categories based on the severity and impact on the household.

- **Stress strategies** indicate a reduced ability to deal with future shocks as the result of a current reduction in resources or an increase in debts.

- **Crisis strategies** are often associated with the direct reduction of future productivity.

- **Emergency strategies** also affect future productivity but are more difficult to reverse or more dramatic in nature than crisis strategies

The livelihood Coping strategies' module should contain at least 10 strategies from the master list. When selecting strategies to include in the module, a combination of four stress strategies, three crisis strategies, and three emergency strategies must be selected (10 strategies in total). More strategies can be collected and only 10 will be used during the analysis and any follow-up monitoring.

Livelihood diversification strategies (e.g. increased seasonal labour migration) can be included in the module if relevant to the context but will not be considered in the classification. The reason is that only strategies should be regarded as that lead to higher food insecurity levels (labour migration, however, it can lead to an increased income and therefore enhance food security).

For all livelihood-based coping strategies, the recall period is set at the 'previous 30 days'. Unlike the consumption-based coping strategies module, it does not capture the number of times each strategy was undertaken.

3.8   Data Analysis

Objective 1: To explore household food consumption patterns

The data was analyzed using descriptive methods which include tables, graphs and charts.

Objective 2: To assess the effects of economic crisis on household food security and nutrition

The research applied CARI (Consolidated Approach for Reporting Indicators of Food Security) including various indexes such as Food consumption score (FCS), Food consumption score nutrition (FCS-N), Reduced Coping Strategy Index (RCSI), Livelihood Coping Strategy Index (LCSI), and to understand the changes in the food security situation and underlying factors within urban, rural, and estate sectors and across the country.

Every indicator has been measured with the aid of the 'Programme Indicator Compendium 2017-2021' published by the WFP.

Calculating the FCS

FCS = sum (FCSStap*2, FCSPulse*3, FCSDairy*4, FCSPr*4, FCSVeg*1, FCSFruit*1, FCSFat*0.5, FCSSugar*0.5)

The FCS is calculated from the direct answers on consumption of the aggregated 8 food groups (above). This is done to reduce the risk of overestimation of food consumption that would be derived from calculations made on the sum of every single food item comprised under the respective food groups.

Based on the FCS households are classified into three groups: poor, borderline or acceptable food consumption.

- **Poor food consumption**: Households that do not consume staples and vegetables every day and never or very seldom consume protein-rich food such as meat and dairy.

- **Borderline food consumption**: Households that consume staples and vegetables daily, accompanied by oil and pulses a few times a week.
- **Acceptable food consumption**: Households that are consuming staples and vegetables every day, frequently accompanied by oil and pulses, and occasionally meat, fish and dairy

Table 3.5: Food Consumption Score

	Thresholds	Adjusted thresholds
Poor food consumption	0-21	0-28
Borderline food consumption	21-35	28.5-42
Acceptable food consumption	>35	>42

Source: WFP, 2020

Calculating the FCS-N

The calculation of the indicator is done through the following multi-step process:

1. Aggregate the individual food groups into nutrient-rich food groups:

    i.   Vitamin A rich foods: Dairy, Organ meat, Eggs, Orange veg, Green veg and Orange fruits

    ii.   Protein-rich foods: Pulses, Dairy, Flesh meat, Organ meat, Fish and Eggs

    iii.   Hem iron-rich foods: Flesh meat, Organ meat, and Fish

    iv.   Oil and fats: Oils and Fats

    v.   Staples: Cereals and Tubers

    vi.   Fruits and vegetables: All fruits and vegetables (both normal and Vitamin A rich)

2. Sum up the frequency of consumption of each food group to calculate the aggregated frequency of consumption by nutrient-rich food groups

3. Build categories of frequency of food consumption groups
    Frequency groups are distinguished by being equal to the consumption of:
    - Never: 0 day
    - Sometimes: 1-6 days
    - At least daily: 7 (and/or more) days
    For analysis, the consumption frequencies of each nutrient-rich food group are then grouped into three categories:
    1 = 0 time (never consumed)
    2 = 1-6 times (consumed sometimes)
    3 = 7 times or more (consumed at least daily)

4. Calculate the percentage of households by consumption frequency category ('never', 'sometimes' and 'at least daily') for each one of the three nutrient-rich food.

FGVitA = sum(FCSDairy, FCSPrMeatO, FCSPrEgg, FCSVegOrg, FCSVegGre, FCSFruitOrg).
FGProtein = sum(FCSPulse, FCSDairy, FCSPrMeatF, FCSPrMeatO, FCSPrFish, FCSPrEgg).
FGHIron = sum(FCSPrMeatF, FCSPrMeatO, FCSPrFish).

Calculating rRCSI

The rCSI module should be used as per the standardized list of coping strategies with fixed weights. To enable meaningful cross-country (or cross-strata) comparisons, five mandatory food consumption-based strategies are required to construct the rCSI. To compare rCSI scores over time and space, the recall period has to stay the same (7 days), which coincides with the same recall period as for the Food Consumption Score (FCS).

Steps to measure the rCSI:

- Ensure missing values are replaced with "0"
- For each coping strategy, the frequency score (0 to 7) is multiplied by the universal severity weight (see table below)
- The weighted frequency scores are summed up to calculate the rCSI. The minimum possible rCSI value is 0, while the maximum is 56
- Then the average (mean) is computed (all households should be considered, also those who are not applying any strategies)

Then, three categories can be categorized as low (<4), medium (4-18), high coping (>18)based on the rCSI value (WFP, 2021).

Calculating LCSI

Households should be grouped according to the most extreme strategy they employed. Stress, crisis and emergency strategies are ranked as 2, 3, and 4 respectively. Households that are using "neutral" strategies or none are in group 1, which means they had not have to apply negative coping strategies. Households are then grouped according to the maximum stress, crisis and emergencies strategies employed (for example, a household that employs 1 stress and one crisis strategies, is classified as "crisis", a household that employs 1 crisis and 1 emergency strategy is classified as "emergency".

Calculating Food Expenditure Share

This is a coping capacity domain and this is needed to calculate the overall food security classification. This represents how much money a household spends on food in a month. If this is high food security is less and if it's low food security is high. Based on the CARI Console food expenditure share can be divided into four components. Accordingly, if it's less than 50 (<50%), that means there is food security. If it's

between 50-65%, that denotes marginally food secure. For 65-75%, it's moderately food insecure and for the above 75% (>75%), that's severely food insecure.

Calculating the Overall Food Security Classification

Once all the available food security indicators in the console have been converted to the 4-point scale, a household's overall food security classification can be easily calculated.

The steps to calculate a household's overall food security classification are described here.

  i.   Calculate the 'Summary Indicator of Current Status' by averaging the household's console score (i.e., 4-point scale) for the indicators in the Current Status domain (CS).
  ii. Calculate the 'Summary Indicator of Coping Capacity' by averaging the household's console scores (i.e., 4-point scale) for available indicators in the Coping Capacity domain (CC).
  iii. Average these results together: (CS+CC)/2
  iv. Round to the nearest integer number, which will always fall between 1 and 4. This number represents the household's overall food security outcome.

Objective 3: To investigate coping strategies adopted by the households during the times of food price hikes

The analytical methods of these coping strategies have already been explained in the above third objective.

CHAPTER FOUR

Results and Discussion

In this chapter the results of the study are presented and discussed with reference to the aim of the study, which was to determine food security levels, prevalent buying behaviour, alterations in consumption behaviours and coping strategies of households.

4.1   Household Characteristics

The average household size in this study was four individuals (as shown in Table 4.1). Approximately 81% of the surveyed households were led by men, while nearly one-fifth (19%) were headed by women. Notably, household characteristics that exhibited the strongest associations with acute food insecurity included the following factors: female-headed households (19%), households where the head had no formal education (especially prominent in the estate sector, where it reached 23%), households with lactating or pregnant mothers, and households with members with disabilities.

Table 4.1: Household Characteristics

Description	Urban	Rural	Estate	Total
Average Household Size	4.08	4.05	4.51	4.18
Gender of HH	(%)	(%)	(%)	(%)
Female	25	18	15	19
Male	75	82	85	81
Education of HH				
No Schooling	5.8	5.0	23.3	9.9
Grade 1-5	13.0	15.9	31.3	18.9
Grade 6-11	18.0	28.0	28.5	25.2
Faced to O/L	25.5	20.4	6.5	18.4
Passed O/L	15.2	12.2	3.7	10.9
Faced to A/L	7.8	7.4	4.5	6.8
Passed A/L	11.9	8.3	1.2	7.6
Diploma	0.9	0.6	0.2	0.6
Graduate	1.5	1.3	0.7	1.2
Ethnicity				
Sinhala	77	83	8	62
Tamil	8	7	90	29
Muslim	15	10	2	9
Households with Special Needs				
Pregnant Mothers	2	3	2	2
Lactating Mothers	10	12	16	12
Members with Disabilities	5	9	7	7

4.2 Major Shocks Faced due to Economic Crisis

The economic crisis affects households in innumerable ways including income generation, food availability, affordability, and accessibility. Different households respond to the shocks in varied ways/degrees using diverse coping mechanisms. The major shocks households faced due to the economic crisis are depicted in Figure 4.1.

Major Shocks Faced by Households
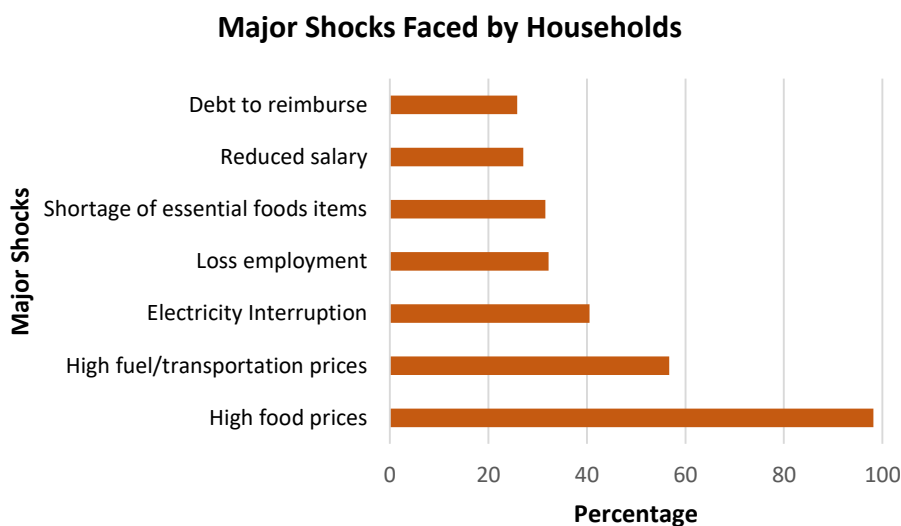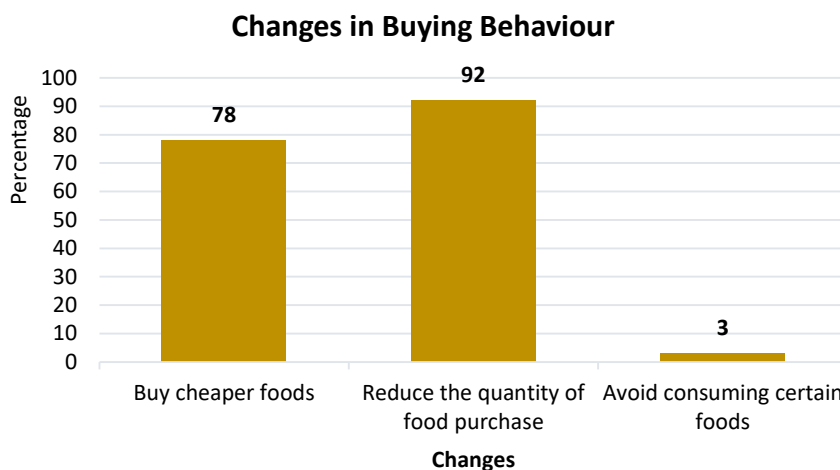

Source: HARTI/WFP Food Security Survey, 2022

Figure 4.1: Major Shocks Faced by Households, 2022

Of the total sample, 98 percent of respondents report being affected by the increase in food prices over the past six months. However, about 57 percent of the households suggested high fuel/transport costs as the most significant drain on their expenditures. About 41 of the households reported electricity interruption as a major shock that they encountered. The majority of the population (64%) experienced an income decrease by less than 50 percent compared to the same six-month period in 2021. However, 43 percent of the population experienced a change in income during the crisis situation. The majority of the daily wage employees (82 %) and farmers (78 %) suffered an income reduction. Significant increase in food and fuel prices and agricultural input scarcity coupled with the loss of employment (32%) contributed to surged food insecurity in the country.

The shocks and difficulties induced by the economic crisis have led to plan overseas migration of at least one member in every ten of HHs and around two percent of them have already migrated.

4.3   Food Access and Affordability

The economic crisis led to a negative change in buying behaviour of 91 percent of the households. The majority (92%) had to restrict the quantities while 78 percent had to shift for cheaper foods.

Changes in Buying Behaviour

Source: HARTI/WFP Food Security Survey, 2022

Figure 4.2: Change in buying behavior

As depicted in Figure 4.3, the main reasons for the changes in buying behaviour were increased commodity prices (88%), shrinking income (64%), increased fuel price (43%) and shortage of commodities (28%).

Changing Buying Behaviour in Households
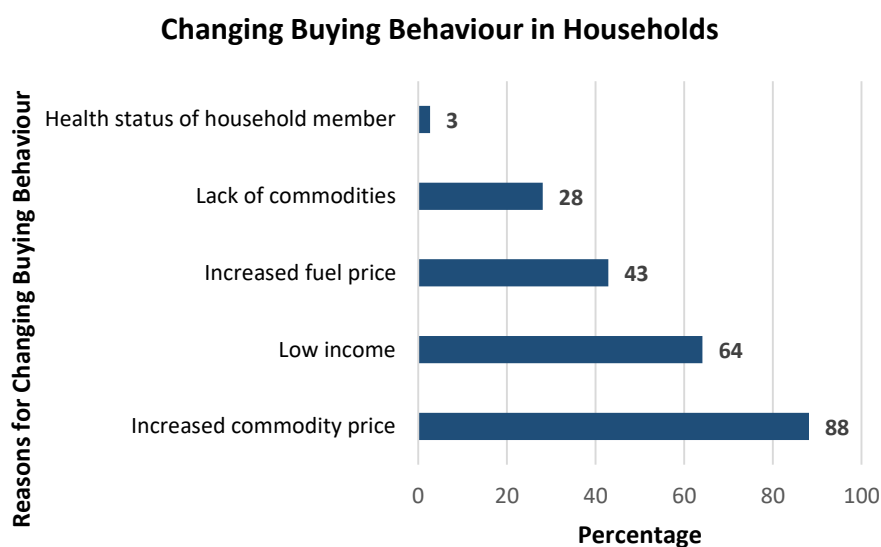
Source: HARTI/WFP Food Security Survey, 2022

Figure 4.3: Reasons for Change in Buying Behaviour

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During the past six months, 74 percent of respondents reported that they did not have enough money to buy food or fulfill essential expenditures such as health, cooking, fuel and children's education. In addition, of the households that had sufficient financial resources to cover food and essential needs, 66 percent faced non-availability or food supply shortages.

Change in Food Consumption Patterns
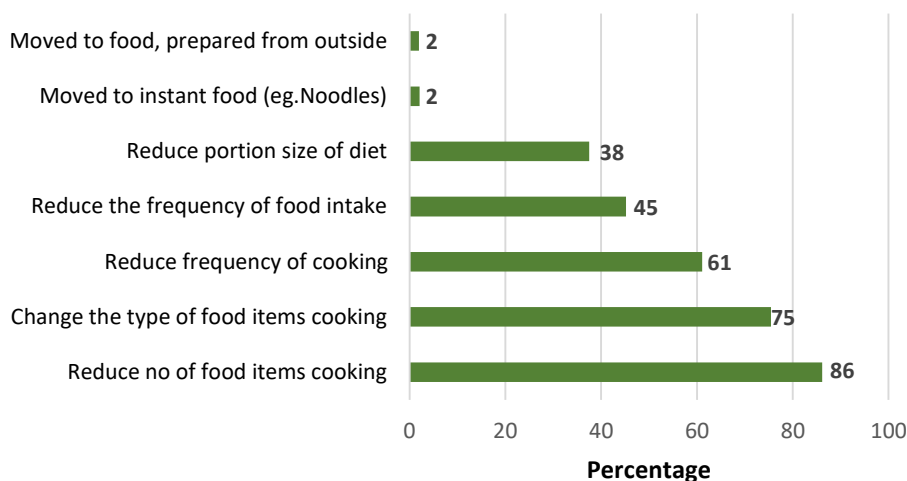
Source: HARTI/WFP Food Security Survey, 2022

Figure 4.4: Change in Food Consumption Patterns

Due to high food prices and shortages, 88 percent of households experienced changing food consumption patterns. The majority of households (86%) reduced the number of food items cooked and 75 percent of the households changed the type of food items used.

4.4   Household Food Expenditure Share

The inflation rate in October 2022 was 66 percent year on year, with food prices increasing   faster than 86 percent year on year. The rising food prices change household food consumption as stated earlier and non-food expenditure which altered the food expenditure share. According to the food security survey, the ratio of food expenditure to total household monthly spending was twofold (71 %) by October 2022, compared to 2019 HIES (35.1 %). More than two in every five households (41.8 percent) reported using more than 75 percent of their monthly food expenses in June 2022. Consequently, the same trend continued until October 2022 (45.8 %) compromising their capacity to cover other essential needs. Households with persistent high food expenditure share are extremely vulnerable to shocks such as price fluctuations, loss of livelihoods and reduced income earning opportunities.
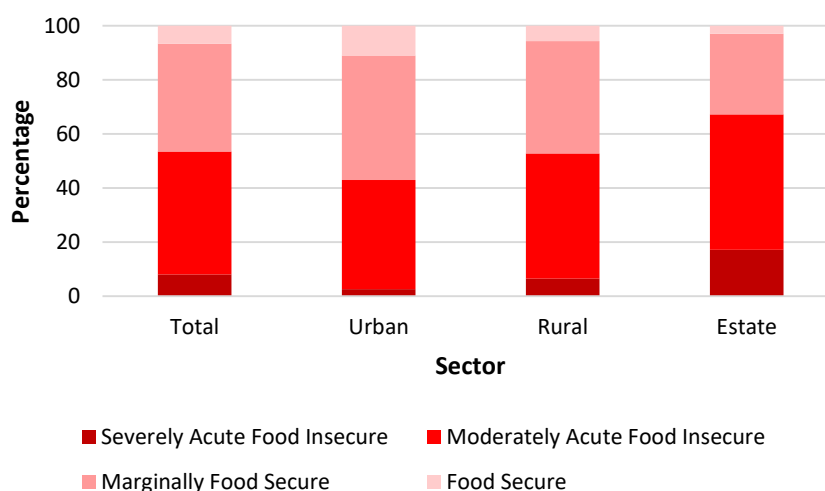
> 75 %   65-75 %   50-65 %   < 50 %
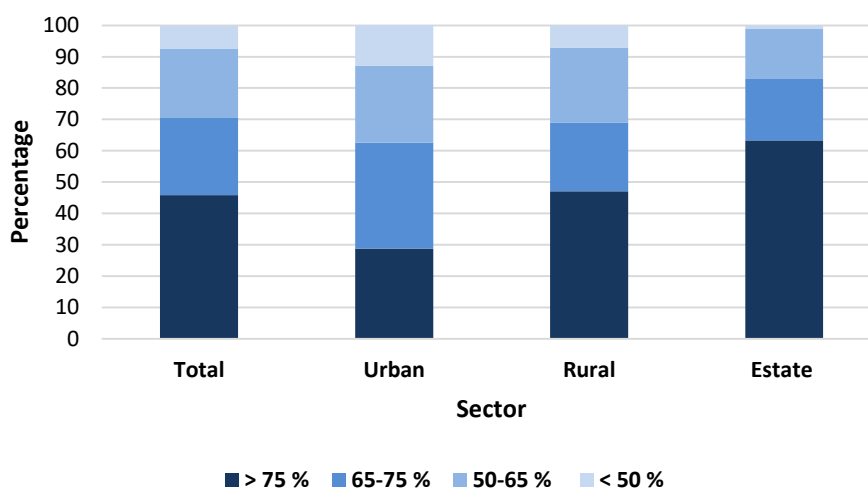
Source: HARTI/WFP Food Security Survey, 2022

Figure 4.5: Household Food Expenditure Share by Sector, 2022

High food expenditure share was especially pronounced in the estate sector (63.3%) households in Kandy (71%), Nuwara Eliya (63%), and Badulla (63%) districts. One in every two households in Ratnapura - Rural, Ratnapura – Estate, Ampara, Matara, and Hambanthota districts spent more than 75 percent of their earnings on food. These findings indicate that households' non-food expenditure budgets are continuously shrinking compared to conditions before the current economic crisis.
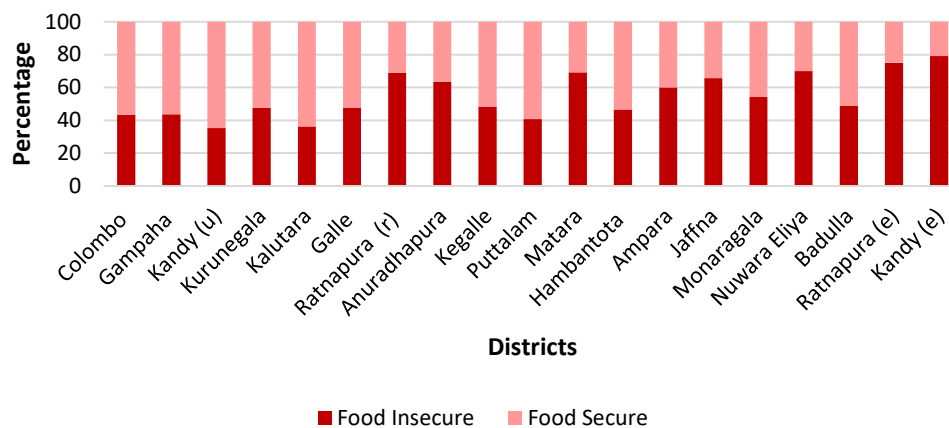
4.5   Food Security Status

The food and nutrition security of households deteriorated in 2022, underpinned by a range of converging factors as reported earlier. Moreover, the food and nutrition insecurity situation in Sri Lanka continues households to exhaust with more coping strategies and dragging many of them into vulnerability.

■ Severely Acute Food Insecure   ■ Moderately Acute Food Insecure
■ Marginally Food Secure   ■ Food Secure

Source: HARTI/WFP Food Security Survey, 2022

Figure 4.6: Food Security Status by Sector, 2022

By October 2022, 46 percent of the households were estimated to be moderately acute food insecure and 8 percent of the households were estimated to be severely acute food insecure. The highest levels of acute food insecurity were found in the estate sector at 67 percent[1] (Figure 4.6). More than half of the rural households (53%) and 43 percent of the urban households experienced acute food insecurity.

Note: * Food insecure = Moderately Acute Food Insecure + Severely Acute Food Insecure, Food Secure = Marginally Food Secure + Food Secure

Source: HARTI/WFP Food Security Survey, 2022

Figure 4.7: Food Security Status in Selected Districts by Sector, 2022

The highest levels of acute food insecurity were experienced by estate households in the Kandy (79 %) and Ratnapura (75%) districts. More than 50 percent of the households in Nuwara Eliya(69.95%), Matara (69.23%), Ratnapura – Rural (69.12%), Jaffna (65.71%), Anuradhapura (63.49%), Ampara (60.00%), and Moneragala (54.29%) experienced acute food insecurity by October 2022. Nearly half of the households in Badulla, Kegalle, Galle, Kurunegala, and Hambanthota districts suffered from acute food insecurity (Figure 4.7).

The beneficiaries of the Samurdhi programme (70.4 %), households with disabled persons (65.5 %) and households with pregnant and lactating mothers (53.7 %) experienced acute food insecurity which requires urgent government interventions to uplift the food security status.
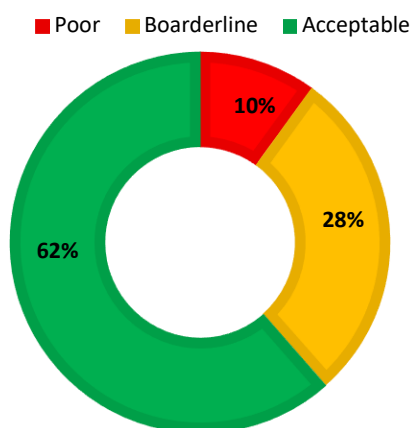
4.6 Food Consumption

4.6.1 Food Consumption Score (FCS)

The FCS aggregates household-level data on the diversity and frequency of food groups consumed over the previous seven days, which is then weighted according to the relative nutritional value of the consumed food groups. Based on this score, a

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[1] This estimate of acute food insecurity is based upon WFP's standard corporate definition using the CARI methodology, whereby "moderately acute food insecurity" is an approximation of the Integrated Food Security Phase Classification (IPC) Phase 3 (Crisis), while "severely acute food insecurity" is an approximation of the IPC Phase 4 (Emergency) or above.

household's food consumption can be further classified into one of three categories: poor, borderline, or acceptable.


Note: Poor (0-28), borderline (28.5-42), or acceptable (> 42) were defined based on FCS Calculations[2].

Source: HARTI/WFP Food Security Survey, 2022

Figure 4.8 : Food Consumption Score, 2022

More than half of households (62%) were at an acceptable level of food consumption meeting their dietary diversity needs. Compared with the fourth quarter of 2021 (MRI, 2021), only 3.4 percent of the households had inadequate food consumption. In October 2022, 8.36 million people (38 %) were not consuming an adequate diet.
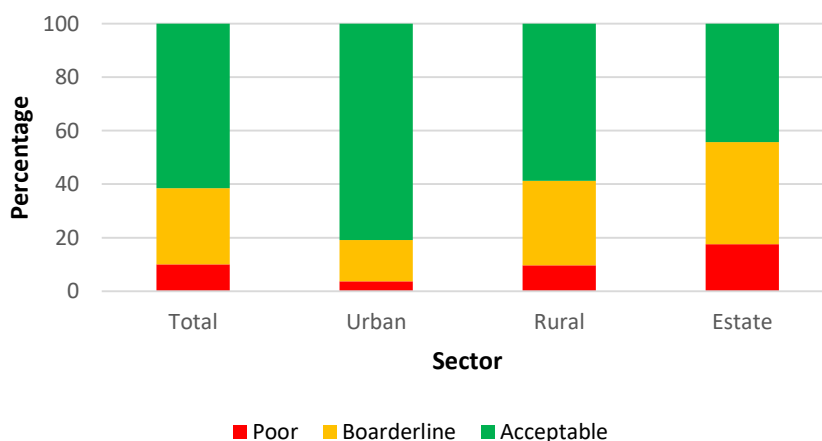
Source: HARTI/WFP Food Security Survey, 2022

Figure 4.9 : Food Consumption Score by Sector, 2022

The Food Consumption Score (FCS) in the urban sector was 81 percent whereas the rural and estate sectors reported a lower food consumption score of 58.7 percent and 44.2 percent respectively but FCS in all sectors were at an acceptable level.

Female-headed households (37.2%), households receiving benefits from the Samurdhi programme (52.8%), households with pregnant/lactating mothers (38.5%), and

[2] Compendium

households with disabled persons (38.5%) experienced inadequate food consumption which needs coordinated support through existing social assistance mechanisms, expanded food assistance, and livelihood enhancement programmes.

The food consumption basket of Sri Lankan households in 2022 mainly consists of cereals (rice), vegetables and oil/fat. The mean number of days per week that the main food groups were consumed by households is presented in Figure 4.10. Accordingly, rice - 7 days, vegetables - 5 days, and oil/fat - 5 days consumed in October 2022.
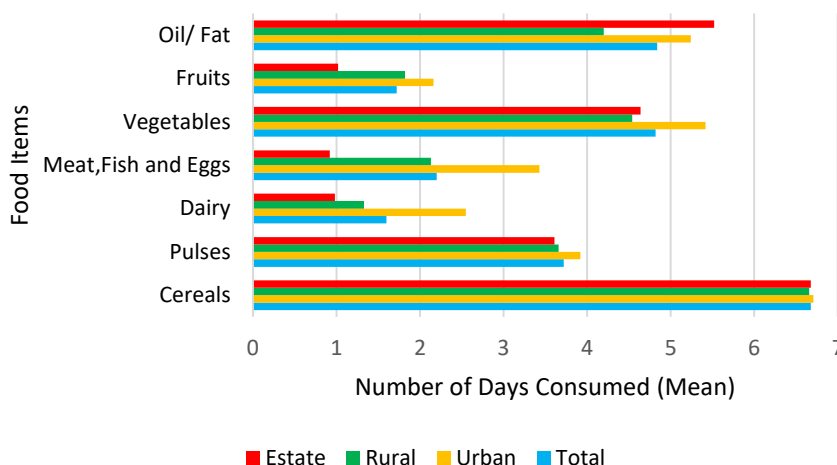

Figure 4.10: Number of Days per Week (Mean) of Consumption of Different Food Groups

In late 2021, households consumed fish between 2.5 – 4.5 days per week, depending on the province (MRI, 2021). In June 2022, meals predominantly consisted of rice, vegetables, and oil, whilst consumption of fish, an essential source of protein in the Sri Lankan diet, averaged just 0.8 days per week (FAO/WFP, 2022). Similarly, in October 2022 fish consumption was recorded as an average of 0.8 days per week which indicates that accessibility and affordability to one of the important protein sources in the Sri Lankan diet have not improved over six-month period. By comparison, consumption of dairy products including powdered milk, in October 2021 was recorded as 3 - 5 days per week. By October 2022 the consumption of dairy products has decreased (1.6 days) substantially compared with late 2021. Households consumed eggs, the cheapest protein source available in Sri Lanka, two to three days per week in late 2021. However, in October 2022 the consumption of eggs has decreased to a day per week due to spiraling cost.

Food Consumption Score Nutrition (FCS – N)
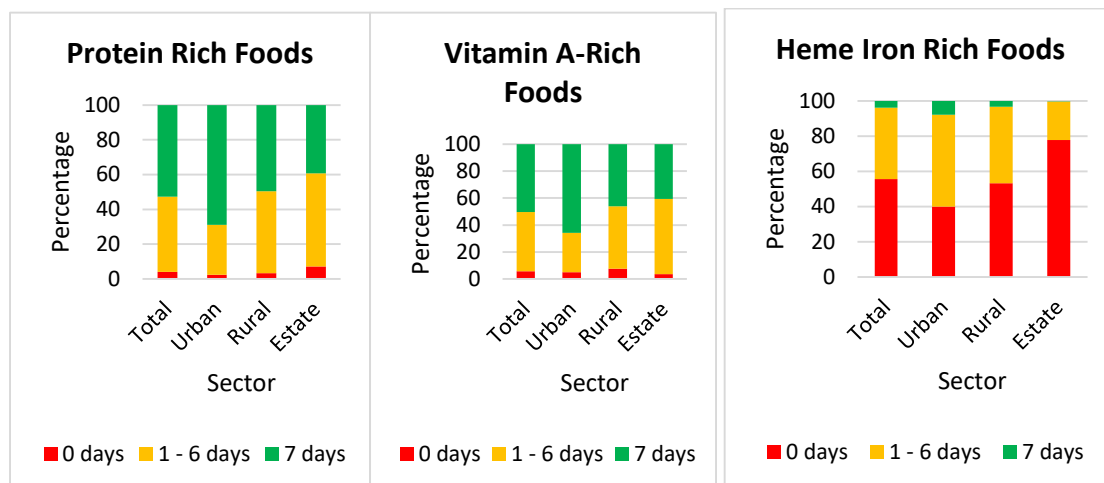
Note: **Vitamin A-rich foods** include Dairy, Organ meat, Eggs, Orange veg, Green veg, and Orange fruits, **Protein-rich foods** include Pulses, Dairy, Flesh meat, Organ meat, Fish and Eggs, **Heme iron-rich foods** include Flesh meat, Organ meat, and Fish; 0 days (never consumed), 1-6 days (consumed sometimes), 7 days (consumed at least daily)

Source: HARTI/WFP Food Security Survey, 2022

Figure 4.11: Frequency Consumption of Vitamin A, Protein, and Hem Iron-Rich Foods by Sector, 2022

In October 2022, 96 percent of households consumed protein-rich foods sometimes (1-6 days) or at least once a day. According to the food security survey, 2.4 percent of the urban, 3.3 percent of the rural, and 7.2 percent of the estate sector households never consumed protein-rich foods. Considering vitamin A-rich foods, 65.8 percent of urban, 46 percent of rural, and 40.7 percent of estate sector households consumed at least one serving per day. Over half of the households (55.7%) never consumed heme iron-rich foods during the survey period. The majority of the households in the estate sector (77.9%) never consumed hem iron rich foods , including flesh meat, organ meat, and fish during the survey period. Further, the frequency of consumption of heme iron-rich foods in the urban sector: 40 percent – never consumed, 52.2 percent – consumed sometimes and rural sector: 53.3 percent – never consumed, 43.4 percent – consumed occasionally.

4.7   Coping Mechanisms

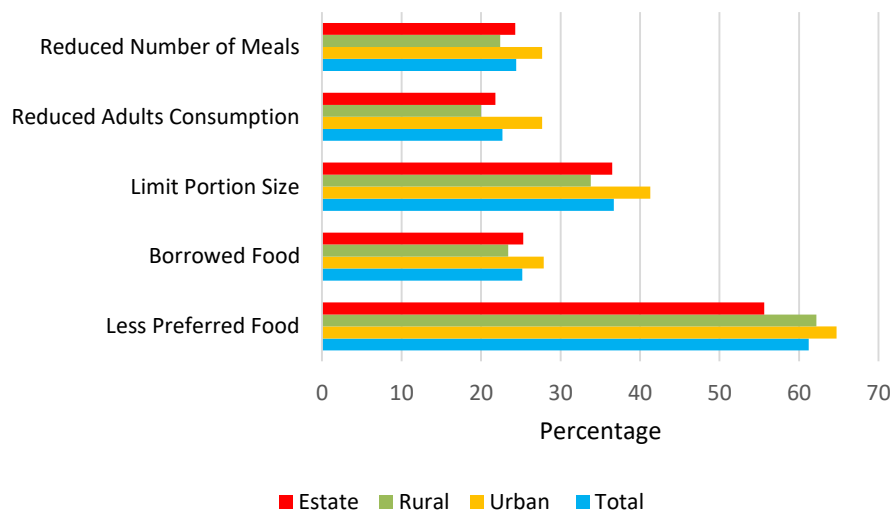### 4.7.1   Food-Based Coping Strategies

The prevailing economic crisis has triggered households to adopt various strategies to cope with reduced availability and access to food. Most households (63.3 %) reported regularly[3] using food-based coping strategies.

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[3] "Regularly" defines as using one or more food based coping strategies at least four times in the week.
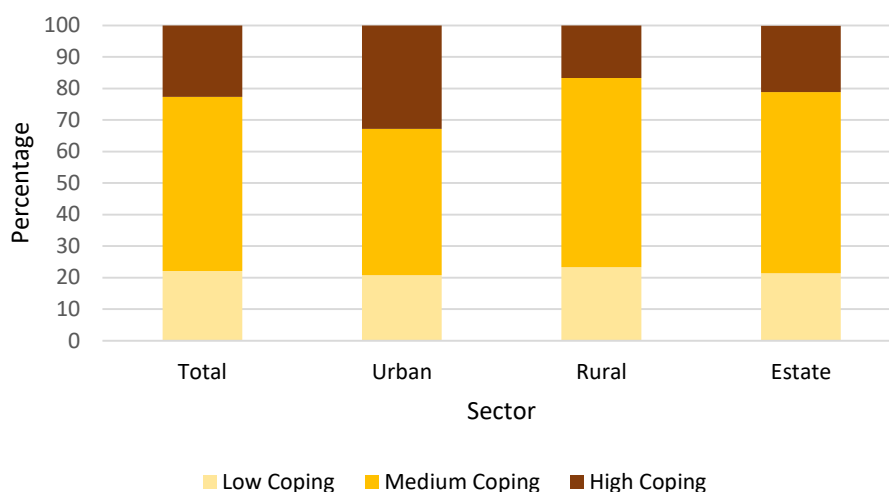
Note: Low Coping (Up to 3), Medium Coping (4-18), or High Coping (> 18) were defined based on WFP [4]

Source: HARTI/WFP Food Security Survey, 2022

Figure 4.12: Food-Based Coping by Sector

Source: HARTI/WFP Food Security Survey, 2022

Figure 4.13: Food - Based Coping Strategies by Sector

Six in every ten households (61.2%) reported that they had to consume less preferred food items and more than one-third of households (36.7%) limit portion sizes.

4.7.2 Livelihood-based Coping Strategies

Livelihood based Coping strategy index (LCSI) is an indicator used to understand the medium and longer-term coping capacity of households in response to lack of food or lack of money to buy food and their ability to overcome challenges in the future. LCSI

households are classified based on the severity associated with the strategies that are applied: the higher the phase, the more severe and the longer-term are the negative consequences.
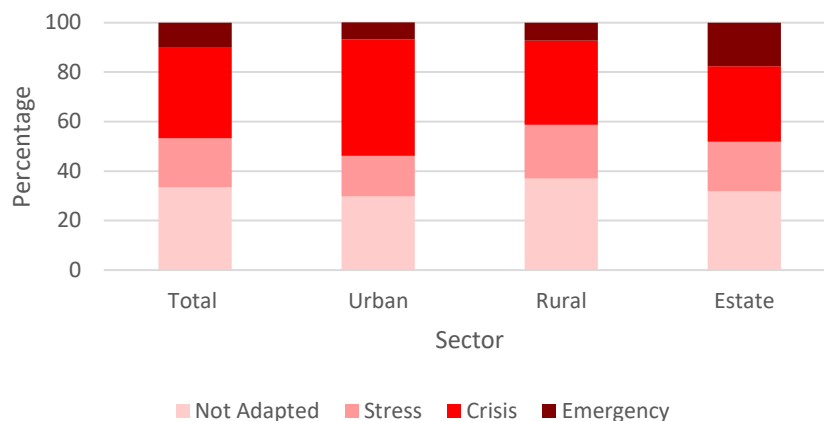
Source: HARTI/WFP Food Security Survey, 2022

Figure 4.14: Livelihood-based Coping by Sector -2022

By June 2022, about 23 percent of the households applied crisis or emergency strategies (FAO/WFP, 2022). However, by October 2022, about 46.7 percent of the households were applying crisis or emergency strategies, mainly reducing essential healthcare expenses (including drugs) and education expenses (40.9 %). This represents a considerable increase in adopting livelihood-based coping strategies compared to June 2022.
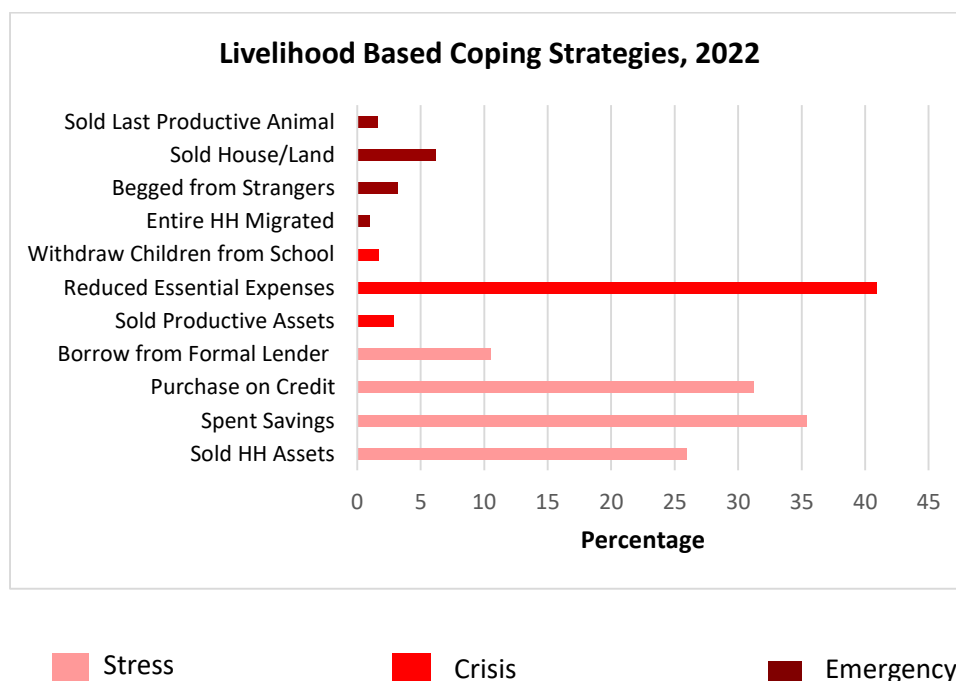
Source: HARTI/WFP Food Security Survey, 2022

Figure 4.15: Livelihood-based Coping Strategies by Sector

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Adjusting the household food consumption patterns and using many food-based coping strategies households fulfill their food access and affordability. However, the majority of the households further rely on an array of livelihood-based coping strategies to cope with insufficient food access which may affect their income-generating capabilities and resilience to future shocks. The food security survey found that 66.5 percent of households across the country had applied at least one livelihood-based coping strategy to cope with the lack of food or reduced purchasing power. This share was higher in the urban sector, reaching 70.3 percent of households.

Table 4.2: Livelihood-based Coping Strategies by Sector, 2022

| Severity	Strategy	Percentage (%)			
		Total	Urban	Rural	Estate
Stress	Sold HH Assets	26.0	27.9	20.2	34.2
	Spent Savings	35.4	45.5	30.6	32.3
	Purchase on Credit	31.2	33.3	28.6	33.3
	Borrow from Formal Lender	10.5	10.4	10.1	11.4
Crisis	Sold Productive Assets	2.9	3.6	2.2	3.2
	Reduced Essential Expenses	40.9	50.2	36.4	38.5
	Withdraw Children from School	1.7	1.5	1.3	2.5
Emergency	Entire HH Migrated	1.0	1.1	0.8	1.2
	Sold Last Productive Animal	3.2	2.1	2.5	5.5
	Begged from Strangers	6.2	4.3	4.5	11.1
	Sold House/Land	1.6	1.3	1.7	1.7

Source: HARTI/WFP Food Security Survey, 2022

Reduced non-food expenses on health (including drugs) and education (40.9 %), spent savings/ skipped debt payment (35.4 %), and purchased food/non-food on credit (31.2 %) were the frequently used livelihood-based coping strategies adopted by households irrespective of sector.

The household borrowings from formal or informal sources during the past six months' period was comparatively higher in the estate sector. The households in which credit was obtained, 71 percent reported that the credit was obtained to buy food and 35 percent reported that it was used to cover health expenses, and 28 percent used to cover the children's education expenses.

4.8   Special Measures to Increase Food Availability by Growing Food Crops

Various parties made representations to support households for the establishment of home gardens and backyard gardens to increase food production and household nutritional levels during the crisis. However, household engagement in food crop cultivation was low (41%). It was recorded that households in the urban sector (20 %), rural (61 %), and estate (19 %) engaged in food crop growing.
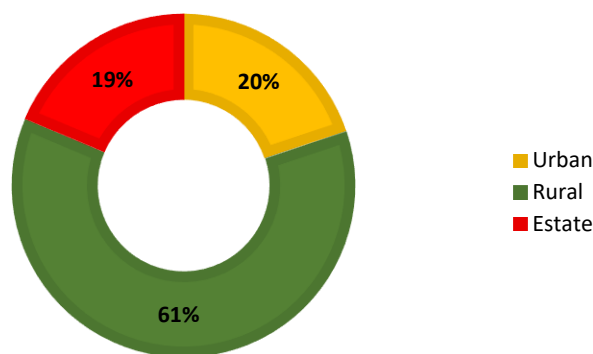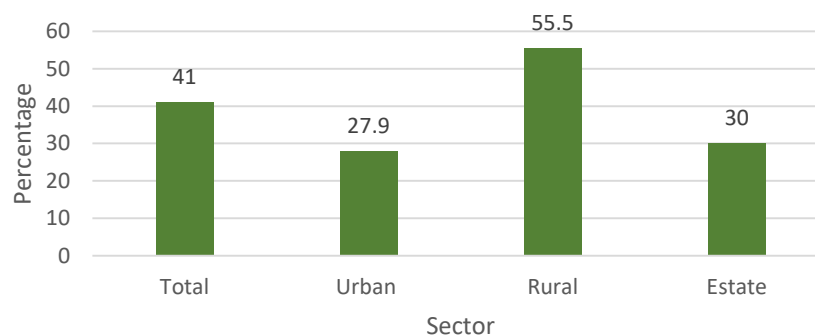
Source: HARTI/WFP Food Security Survey, 2022

Figure 4.16: Engagement in Food Crops Growing as a Crisis Response by Sector

It has become difficult for the public and private sector officers to use public transport services and satisfy their transport requirements with the help of private transport modes as a result of the issues arising in the transport sector in the face of limits in the fuel supply.

As a response to the transport difficulties due to fuel shortage and anticipated threat to food security, the government of Sri Lanka issued the Public Administration Circular: 15/2022. The circular relating to the modalities of declaring Friday as a special holiday for government employees to cultivate while staying at home, was issued by the Ministry of Public Administration, Home Affairs, Provincial Councils, and Local Government for three months with effect from 24.06.2022. Figure 4.17, shows the government employees' response to the aforementioned circular. The results show that only 41 percent of the government employees engaged in food crop cultivation. In the rural sector, 55.5 percent engaged in cultivation however, the urban (72.1%), and estate (70 %) sector employees who were mostly threatened by the food crisis did not engage in food crop cultivation.

**Households with Government Employees' Engagement in Home Gardening**

Source: HARTI/WFP Food Security Survey, 2022

Figure 4.17: Household Engagement in Home Gardening, Government Employees

4.9   Need Assistance

Figure 18 shows the details of registration to receive Samurdhi benefits, 31 percent of households in the sample had registered to receive Samurdhi benefits while 59 percent were not registered. The proportion of households receiving Samurdhi in the sample was closer to the national level of 33 percent, which by itself is higher than the official poverty rate in Sri Lanka—a reflection of the failure to establish and ensure targeted social security benefits reach those truly in need (IPS, 2021). Among registered Samurdhi beneficiaries, only 73 percent received Samurdhi benefits during the survey period indicating inefficiencies in existing social safety nets.

Only 28 percent of the households reported that they received assistance during October 2022, other than Samurdhi benefits from none of the government or non-government organizations. Among them, 94 percent received in-kind food assistance while the rest received cash assistance.
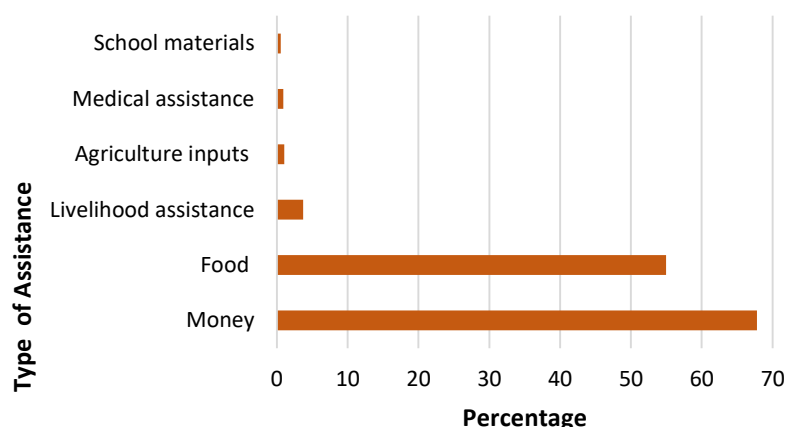
Source: HARTI/WFP Food Security Survey, 2022

Figure 4.18: Type of Assistance Required

Overall, 79 percent of households expect any kind of assistance to meet their daily household needs. Among them, the majority preferred cash transfer (68%), 55 percent preferred food assistance, and 5 percent preferred livelihood assistance. However, the majority applied reducing essential healthcare expenses (including drugs) and education expenses (40.9 %) as major livelihood-based coping mechanisms. Therefore, government intervention to support to meet household expenses on health and education is essential.

CHAPTER FIVE

Conclusion and Policy Implication

5.1   Conclusion

In conclusion, the findings of this study provide a comprehensive overview of the dire food security situation in Sri Lanka in the year 2022, which was largely exacerbated by the economic crisis that the country faced. Various aspects of household characteristics, economic shocks, food access and affordability, food consumption patterns, food security status, coping mechanisms, and the need for assistance shed light on the profound challenges that households across the nation have had to endure.

The study reveals that the average household size was four individuals, and a significant number of households was led by men (81%). Vulnerable households included those with female heads, low levels of formal education among household heads, lactating or pregnant mothers, and members with disabilities.

The economic crisis had a multifaceted impact on households, including soaring food prices, high fuel and transport costs, electricity interruptions, and income decreases. This resulted in acute food insecurity, particularly affecting daily wage employees and farmers, and prompted migration as a coping strategy.

The economic crisis drastically changed household buying behaviour with increased commodity prices, shrinking incomes, and food supply shortages leading to a lack of finances to cover essential expenditures like food, health, and education. Many households had to restrict quantities and shift to cheaper foods, impacting their nutritional intake.

High food prices and shortages forced households to reduce the number and types of food items they consumed. The inflation rate and rising food prices significantly altered the food expenditure share, with a majority of households spending a substantial portion of their income on food.

Sri Lanka experienced 54 percent of HH food insecurity. Moreover, Household food insecurity in urban, rural, and estate sector estimated as 43 percent, 53 percent and 67 percent respectively. However, more than half of HHs (62%) were at an acceptable level of food consumption according to FCS.

By October 2022, a considerable proportion of households were experiencing acute food insecurity, with the highest levels observed in the estate sector. Vulnerable groups, such as beneficiaries of the Samurdi programme, households with disabled members, and those with pregnant or lactating mothers, were disproportionately affected.

The study highlights a decline in the diversity and frequency of food groups consumed, with staple foods like rice, vegetables, and oil being the most commonly consumed items. The consumption of protein-rich foods, vitamin A-rich foods, and heme iron-rich foods varied across urban, rural, and estate sectors.

Households adopted food-based coping strategies, such as consuming less preferred food items and limiting portion sizes. Livelihood-based coping strategies, including reducing healthcare and education expenses and borrowing, became increasingly prevalent, reflecting the erosion of households' resilience.

Efforts to encourage food crop cultivation through home gardens were met with limited engagement, especially in urban and estate sectors, despite concerns about food security and transport difficulties due to fuel shortages.

A significant portion of households expected assistance to meet their daily needs, with a preference for cash transfers and food assistance. However, the study suggests that government intervention in healthcare and education expenses is crucial given the high reliance on reducing these expenses as a coping mechanism.

In summary, the findings emphasize the urgent need for comprehensive government interventions to address the food security crisis in Sri Lanka. These interventions should include targeted support for vulnerable groups, measures to stabilize food prices, initiatives to promote food crop cultivation, and improved social safety nets. The study underscores the importance of a coordinated and multi-pronged approach to alleviate the suffering of households and restore food security in the country.

5.2   Recommendations

- Government, humanitarian and development partners are strongly encouraged to provide coordinated support by cash grants or direct food assistance, for moderately or severely acute food-insecure households through existing social safety networks. Support should be prioritized for the estate sector and Samurdhi beneficiary households, households with members having a disability, and urban households depend on the informal sector for income generation.

- Continuation of nutrition interventions and targeted supplementary feeding to ensure food and nutrition security among children, pregnant, and lactating mothers.

- Strengthen the accessibility to free health and increase the availability of medicine at affordable prices to cater to the growing demand for medicine and healthcare facilities.

- Ensure the continuous supply of agricultural inputs such as chemical fertilizers, agrochemicals, along with locally produced organic fertilizers, seeds, and other agricultural supplies at subsidized prices to all farmers to ensure food availability

at affordable prices and restore the income generation capacity of the farming community.

- Support the recovery of the livestock and fisheries sectors by providing essential inputs such as high-nutrient animal feed, vaccines, and veterinary health kits at a subsidized price.

- Safeguard food accessibility by relaxing import restrictions of essential food commodities and developing market channels.

- Develop a comprehensive recovery programme for economically vulnerable populations, encompassing both short-term and long-term strategies. The programme should focus on promoting supplementary income-generating activities and implementing targeted interventions to enhance accessibility to nutritious food.

- Establish a national level food security monitoring system that timely updates key indicators and facilitates with flexible response programming to track the food and nutritional security situation.
- Implement medium-term and long-term strategies to improve food production through research and development and to increase income generation opportunities among vulnerable groups and youth.

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