RESILIENCE, ISLANDNESS AND FOOD SYSTEMS IN SMALL ISLAND DEVELOPING STATES: A STUDY OF THE MALDIVES

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GLOSSARY OF ABBREVIATIONS AND ACRONYMS

ADC	Atoll Development Cooperation
AGRONAT	Agronational Cooperation
ATA	Athireemaafannu Trading Account
BoPA	Barbados Programme of Action
CARICOM	Caribbean Community and Common Market
CDR	Crude Death Rate
CVD	Cardiovascular Diseases
EEZ	Exclusive Economic Zone
FAO	Food and Agriculture Organization
GAP	Good Agricultural Practice
GDP	Gross Domestic Product
GSHS	Global School Health Survey
HCI	High Commission of India
HDI	Human Development Index
HLPE	High Level Panel of Experts on Food Security and Nutrition
IDC	Island Developing Countries
IPCC	Intergovernmental Panel on Climate Change
IWDC	Island Women's Development Cooperation
IYCF	Infant and Young Child Feeding
LGA	Local Government Authority
MBS	Maldives Bureau of Statistics
MDG	Millenium Development Goals
MDHS	Maldives Demographic and Health Survey
ME	Ministry of Environment
MEE	Ministry of Environment and Energy
MFDA	Maldives Food and Drug Authority
MIFCO	Maldives Industrial Fisheries Company
MPL	Maldives Ports Limited
MSS	Maldives Shipping Services
MVR	Maldivian Rufiyaa
NBS	National Bureau of Statistics

NCD	Non-Communicable Diseases
NDMA	National Disaster Management Authority
NGO	Non-Governmental Organization
PNG	Papua New Guinea
PLS	Plain Language Statement
SAARC	South Asian Association for Regional Cooperation
SES	Socio-ecological Systems
SIDS	Small Island Developing States
SOE	State Owned Enterprise
STO	State Trading Organization
TFR	Total Fertility Rate
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
WDC	Women's Development Cooperation
WHO	World Health Organization
WTO	World Trading Organization

ABSTRACT

Islands have long been depicted as vulnerable, and lacking in resources, power, and adaptive capacity. Despite recent shifts away from these perspectives, in the context of food systems in Small Island Developing States (SIDS), such assumptions persist and continue to obscure understandings of their ability to adapt and recover from socio-economic and environmental changes. In addressing this gap, this thesis assesses the opportunities and challenges to achieving a resilient food system in the Maldives. It challenges conventional discourses of SIDS as especially vulnerable to socio-economic and environmental changes and lacking agency and power. The thesis illustrates the ways in which islanders in the Maldives – an interesting and distinctive case - build and maintain resilience in the face of everyday and sudden disruptions to their food system.

Specifically, this thesis examines the organization of the food system in the islands, people's perceptions of the risks and challenges to the food system, and the ways in which the government, local councils and communities respond to those risks and challenges to build and maintain resilience. This thesis is theoretically grounded in the Socio-Ecological Systems (SES) resilience framework and theories of islandness. It takes a place-based, human-centric approach to studying resilience, based on qualitative analysis of people's perceptions, lived experiences and responses to challenges to their food security. It draws on ethnographic material gathered from two case study islands in the Maldives - Felidhoo and Magoodhoo Island - and is based on semi-structured interviews and observations of everyday life in those islands.

This thesis contributes to the growing body of literature that foregrounds the resilience of islands, illustrating that islandness does not make SIDS 'inherently' vulnerable, but can also present opportunities to build and maintain resilience. With a focus on the Maldives, this thesis highlights resilience to food system shocks and disruptions in SIDS, based on three factors; multi-scalar connectivity, social and cultural norms that enhance everyday agency within island communities, and multi-level, adaptive governance in response to risks and sudden shocks.

DECLARATION

This is to certify that:

i. no portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning;
ii. the thesis comprises only my original work towards the Degree of Doctor of Philosophy;
iii. due acknowledgment has been made in the text to all other material used; and
iv. the thesis is fewer than 80,000 words in length, exclusive of tables, maps, bibliographies and appendices, in accordance with the Melbourne-Manchester dual award PhD programme.

Mariyam Anaa Hassan
May 2024

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CHAPTER 1 INTRODUCTION

> The survival into the modern era of a large number of successful small states ... is evidence ... not of weakness but of underlying elements of strength that are inherent in small, often island, societies. (Baldacchino and Bertram, 2009:142)

This thesis contributes to understandings about the strengths and capacities of Small Island Developing States (SIDS), by analysing the opportunities and challenges to achieving a resilient food system, through a distinctive case study of the Maldives. It challenges conventional discourses that overemphasise the vulnerability of SIDS to economic and environmental changes, and that pay insufficient attention to how islanders build and maintain resilience in the face of shocks and stressors to their food systems. While dominant discourses of SIDS vulnerability have been critiqued in island studies, there has been limited scholarly consideration and empirical analysis on how their strengths and adaptive capacities manifest across the multiple scales and dimensions of complex food systems in diverse contexts. This thesis contributes to addressing this gap in understandings and analyses of food systems and resilience in islands.

This interest in exploring resilience through the lens of food systems was sparked by questions that arose as I witnessed food system processes during the COVID-19 pandemic in 2020. I vividly recall the onset of the pandemic in the Maldives. The virus first reached our shores in March 2020, initially recorded on a tourist island. By April 2020, the first local case surfaced in Malé city, one of the world's most densely populated areas (Sattar et al., 2022). This prompted an immediate nationwide lockdown, enforcing travel bans and restrictions on public gatherings. The Maldivian borders remained closed from March to July 2020, a four-month period that exerted severe pressure on the tourism industry, the nation's major economic sector, and restricted the flow of foreign income into the country. During this time, there were widespread concerns about declining food stocks all over the world, and images of empty supermarket shelves due to global logistical disruptions became a common sight on the news. These concerns were raised by many International Organizations including the Food and Agriculture Organization (FAO) who in their COVID-19 Response and Recovery Programme, stated that:

> The COVID-19 pandemic is jeopardizing human health and disrupting the food systems that are the foundations of health. Unless we take immediate action, we could face a global food emergency of severity and scale unseen for more than half a century. (FAO, 2020:1)

Given these global concerns, I anticipated a grim scenario for the Maldivian food system given its high import dependency, low domestic productivity, and the closure of borders affecting the tourism industry. Surprisingly, however, despite the initial panic, the situation appeared to be well managed. Local supermarkets and shops maintained sufficient stocks of food, online ordering facilitated access to essential items, and food remained readily available.

This inspired a curiosity in me: why had the food system in the Maldives, a country that is reportedly vulnerable to global environmental and socioeconomic change, with a high import dependency and an economy almost entirely dependent on tourism, not crumbled in the face of such a huge global shock? Could a seemingly fragile nation be both vulnerable and resilient? These questions motivated me to investigate the resilience of the Maldives by analysing how people respond and mediate challenges to their food systems. It is within this context that this thesis challenges the portrayal of small island developing states such as the Maldives as inherently and solely vulnerable, by bringing to the fore marginalized narratives that highlight their potential strengths and capacities to adapt to and recover from shocks and disruptions. While I acknowledge and do not wish to downplay the challenges and risks that small island states, including the Maldives, face in the midst of major socio-economic and environmental changes, in this thesis I aim to highlight dimensions of resilience.

1.1 Resilience of food systems in SIDS: Research Significance

In recent years, there has been a growing academic and policy interest in examining the resilience of food systems and ensure food security. The global landscape has seen a concerning rise in food insecurity, with figures soaring from 135 million people across 53 countries in 2019 to 345 million across 82 countries in 2022 experiencing food insecurity (World Bank, 2022). Escalating threats posed by global shocks such as the COVID-19 pandemic have resulted in dramatic spikes in food prices and shortages worldwide, further

exacerbating food insecurity. The COVID-19 pandemic, while primarily a health crisis, laid bare the fragility of food supply chains and the need for food systems that can adapt to, withstand, and recover from unforeseen challenges (Rice et al., 2020, Hickey and Unwin, 2020, Béné, 2021). However, it is just one of the many ongoing and potential shocks and stressors, threatening food systems worldwide. The global food crisis of 2008 revealed how a convergence of market shocks and disruptions in food production can cause dramatic increases in global food prices and food shortages (Headey, 2011). Geopolitical shifts and conflicts such as the Russian invasion of Ukraine led to an immediate spike in global food prices, due to supply chain disruptions, reaching record highs in 2022 (Rimhanen et al., 2023). Moreover, the threats posed by climate change further exacerbate the challenges faced by food systems. Extreme weather events, environmental disasters, and associated socio-economic disruptions are all impacting food supplies, with projections indicating that these challenges will intensify in the future (Mbow et al., 2019).

Most importantly, the existing literature illuminates how the complexities associated with the production, distribution and consumption of food are amplified for certain populations, due to their geographical and socio-economic contexts (Hickey and Unwin, 2020, FAO, 2016, Guell et al., 2022). In this regard, SIDS are considered to be some of the most vulnerable countries in meeting their food security needs. The United Nations officially recognizes 57 countries as SIDS (39 sovereign states and 18 dependent territories) (United Nations, 2023) that are broadly claimed to be facing specific social, economic, and environmental vulnerabilities, including complex food and nutritional-related challenges (Guell et al., 2022). According to such claims, common vulnerabilities shared between (or, indeed, assigned to) SIDS include inadequate land availability given their small size, geographic isolation and insularity, high susceptibility to environmental disasters, and deep integration into global markets (Pelling and Uitto, 2001, Wong, 2011). The vulnerabilities and development needs of SIDS were officially recognized and described in the Barbados Programme of Action (BPoA) for the Sustainable Development of Small Island Developing States at a global conference in 1994. Subsequently, the importance of food security, nutrition and sustainable agriculture were acknowledged as significant to sustainable development in SIDS at the 2012 Third United Nations Conference on Sustainable Development (FAO, 2014) and food security was identified as a priority at the

Third International Conference on SIDS, convened by the UN in 2014 in Samoa (Connell and Lowitt, 2020). Globally, there is thus a recognition that SIDS face substantial challenges, particularly in achieving food security.

Climate change remains a key factor threatening food security in SIDS. Climate change threats that affect agriculture and fisheries, resources that form the basis of food systems in SIDS, include (among others) sea-level rise, increased intensity and frequency of extreme weather events, changes in weather patterns especially rainfall patterns which can strain freshwater resources, recurrent droughts, and ocean acidification (UNFCCC, 2007). These impacts are also forecasted to impact negatively on food distribution networks and related infrastructure in SIDS. In addition to food system vulnerabilities associated with climatic and environmental changes in SIDS, food price volatility related to the growing disparities in global trade, weak local food systems and inadequate capacities to produce local food aggravate existing food system susceptibilities in these countries (United Nations, 2011, AOSIS, 2012). Furthermore, according to the FAO (2019), because SIDS are heavily reliant on imports, they are exposed to global shocks and disruptions. At the same time, the high import dependency facilitated through trade liberalization is argued to have resulted in underdeveloped local food systems in islands which has further limited their capacities to achieve and maintain food security (FAO, 2016). Food imports are also associated with increased health risks in SIDS, with high-energy diets being linked to chronic diseases (Chase et al., 2014, Francis et al., 2010, WHO, 2012). These multiple and growing threats to food security in SIDS, underscore the urgency of studying resilience of food systems in SIDS.

Several studies tend to focus on unpacking the ways in which SIDS food systems are challenged. This overemphasis limits knowledge of the unique resourcefulness, agency, power, and adaptive capacities of SIDS in response to growing threats and uncertainties. This obscure understanding of how challenges are mediated and addressed across the multiple scales and dimensions of food systems. At the same time, there remain limited place-based, human-centric advancements of resilience as applicable to complex social-ecological systems such as food systems. Therefore, this thesis examines the place-based, socio-cultural, economic and political contexts that shape everyday lives and resilience in

SIDS, as they adapt and recover from shocks and disruptions to their food systems, across its multiple scales.

Thus, by exploring the opportunities and challenges to achieving a resilient food system in SIDS, this thesis contributes to the emerging counter-narrative of island vulnerability, which suggests that island states and their inhabitants possess 'flexibility, resourcefulness, and strategic responses to threats and opportunities that enable them to overcome economic and other external shocks they experience' (Baldacchino and Bertram, 2009: 144). It recognizes that viewing islands or their peoples solely through a deficit or 'vulnerability' lens is unhelpful and inappropriate.

1.2 The Maldives as a Case Study

The Maldives presents a compelling case study to explore the resilience of food systems in SIDS. The Maldives consists of an archipelago of low-lying coral islands, grouped into 26 naturally occurring atolls. Of the existing islands, 187 are inhabited, with a population of 512,122 as of 2022 (MBS, 2022) dispersed across the islands. 41% of the population lives in the capital island Malé, reflecting substantial internal migration. The total land mass of the country is roughly 300 km^2 (ME, 2012), with an Exclusive Economic Zone (EEZ) that covers an expanse of 859,000 km, with 99% of the nation's territory comprised of oceanic space. The majority of the islands are extremely small, with only a few exceeding a land area of 1 km^2 (FAO, 2012), as a result, arable lands for agriculture remain limited and 90% of the food consumed in the country comes through imports (MEE, 2016). Like many other SIDS, the Maldivian economy is highly dependent on tourism, which accounted for 21% of the GDP in 2021 (NBS, 2021). While tourism makes a significant contribution to the Maldivian economy, fishing has always remained a key livelihood activity for the Maldives and remains as the key source of foreign income into the country, alongside tourism.

Similar to other SIDS, Maldivian islands also remain highly exposed to the impacts of sea-level rise and climate change. Around 80% of the islands in the Maldives lie less than one meter above sea level, with the highest elevation reaching merely two meters (ME, 2012). According to the Ministry of Environment and Energy (MEE, 2016), as a consequence of this, the Maldivian islands are regularly exposed to various climatic threats, impacting all economic sectors including critical domains such as tourism, agriculture and fisheries

which are integral to ensuring food security of the Maldives. Climate change is thus central to discussions about food security in the Maldives due to factors such as adverse effects on subsistence production and fish stocks as well as challenges to the logistics of transporting food between islands during unpredicted climate events and disasters.

While the Maldives shares similarities with other SIDS as summarised above, the Maldives also has a specific economic and political history which makes it rather unique. It dates back to over 2500 years ago when first settlers arrived from the *Kalibagen* region of the Indian sub-continent (Mohamed, 2005b). While these early settlers may have arrived from agricultural lands, historians contend that the high littorality of the Maldivian islands coupled with poor quality of soil and small size, made farming as a livelihood unsuitable. As a result, since the very beginning, Maldivians have relied on the ocean and its resources for sustenance, primarily through fishing and trade. Evidence suggests that Maldivians were well known for their nautical knowledge which allowed them to navigate challenging currents and turbulent waters, and to travel through the vast Indian Ocean throughout the year establishing and sustaining robust trade connections (Mohamed, 2005a). At the same time, the location of the Maldives in the middle of the Indian Ocean Spice Trade Route made it a convenient resting stop for traders, to replenish water and food reserves and seek refuge during bad weather (Mohamed, 2005a). For this reason, many past travellers in the Indian Ocean knew of the Maldives which became an important ally for those who had a stake in this prominent trade route (Van Mehran, 1866). This early trade history of the Maldives shows how it has always been well connected globally, a fact that continues to play an important role in shaping food security in the country today.

The Maldives also has a unique political history. It was a monarchy until the Portuguese arrived in the Indian Ocean in 1558 BC and ruled the Maldives for 15 years. When the Maldives was a British Protectorate from 1887-1965, the British government promised the Maldives military protection and non-interference in local administration (Phadnis and luithui, 1981). Contacts with British colonial power were intermittent; and the colonial era did not have anything like the deep impact on the social and economic structure of the islands, as it did in other parts of the British empire at the time (Phadnis and luithui, 1981). Thus, the Maldives remained largely free from colonial domination of the kind that was

employed in most other islands in the Indian ocean, and this has shaped its social and economic context.

Another unique context of the Maldives is the sharing of a single religion - Islam - throughout the archipelago. Islam was adopted as the official religion in 1153 AD (Maniku, 1986), influenced by its early trade history with Arabs and Persians who had a significant stake in the region at the time. Interestingly, historians speculate that the reason for the Maldives to embrace Islam as an official religion and implement Islamic Shariah, was a strategic, political and economic move, rooted in nationalistic thinking. Embracing one religion gave the Maldives a distinct identity and a strong sense of belonging, making it distinct and stronger in the face of the political tensions and power imbalances in the region (Maniku, 1986). Some also argue that the establishment of Islam in the country connected it with extensive Muslim networks of trade that were very active in the region (Yadav et al., 2020). The Maldives has remained an Islamic state and the island communities continue to share one religion, giving Maldivians an identity that has contributed to shaping the social and cultural context of the country.

Given the above context, the Maldives provides a rich case to study food system resilience in SIDS, as it shares many geographical, socio-economic, and environmental challenges common to other SIDS. However, while these similarities are significant, the Maldives is also distinct in several ways. Its colonial and political history, its homogenous religious identity, and its deep-rooted tradition of seafaring and trade coupled with its location in the Indian Ocean with close proximity to India, has created specific advantages and challenges that distinguish it from other island nations. Thus, while the Maldives faces many of the same developmental challenges as other island nations, these unique characteristics make it a particularly compelling and distinct case study for understanding resilience within the SIDS context.

1.3 Theoretical Background to Food System Resilience and Islandness

In exploring food system resilience in SIDS, this thesis is grounded in theories of Socio-Ecological Systems (SES) resilience and islandness. Food systems are understood as a holistic approach to thinking about food security concerns and challenges (Zurek et al., 2022). Food security is widely conceptualized based on the four dimensions identified by the FAO - availability, accessibility, utilization and stability - and two recent additions - agency and sustainability (HLPE, 2020). In this context, food security exists when:

> all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life. (FAO, 2001: 49)

Food systems are highly complex and interconnected socio-ecological systems through which the food security needs of a population are met. This system consists of all elements (e.g. environment, people, inputs, processes, infrastructure, institutions) and activities that relate to the production, processing, distribution, preparation and consumption of food, and the outcomes of these activities including socio-economic and environmental factors (HLPE, 2017). It consists of biophysical and social elements, interconnected though feedback mechanisms (Berkes et al., 2003, Ericksen, 2008). Most importantly, food systems operate over a range of levels of spatial, temporal, and jurisdictional scales (Zurek et al., 2022), and understanding how these factors interact across different scales and levels is central to studying food systems (Ramalingam et al., 2008, Thompson and Scoones, 2009).

Scholars conceptualizing food system resilience largely draw on the foundations of SES resilience. They argue that the SES perspective, rooted in an appreciation of the complexity of systems, carries significant analytical potential for assessing resilience of food systems, given the complex dynamics of social and ecological drivers and their feedbacks and interactions within food systems (Tendall et al., 2015, Zurek et al., 2022, Béné et al., 2023). In the context of food systems, resilience is particularly concerned with the impacts of disasters and other adverse events on people's food security (Béné et al., 2023). Tendall et al. (2015) define food system resilience as the capacity over time of a food system and its

units at multiple levels to provide sufficient, appropriate and accessible food to all, including in the face of various and even unforeseen disturbances. They emphasize that resilience occurs at multiple levels of the food system, from individuals to national food systems to global webs of value chains, thus signalling that resilience requires participatory engagement in food systems. Building upon these fundamental systems and principles, scholars (Zurek et al., 2022, Béné et al., 2023) continue to adapt SES resilience frameworks to food systems. This thesis finds Béné et al. (2014a) conceptualization of food system resilience useful, as it prioritises a human-centric perspective of resilience. It emphasises actors and their agency as the entry point to understanding resilience, specifically through people's absorptive, adaptive and transformative capacities. It underscores the diversity of actors involved, and their interactions across multiple spatial scales, allowing a comprehensive understanding of the complexity of the entire food systems across multiple dimensions and scales.

While SES provides a useful framework to study resilience of food system in SIDS, social scientists have criticised such frameworks for oversimplifying social relations and dimensions of resilience such as power, politics, governance, and agency. Scholars such as Adger et al. (2009: 350), for example, highlight the important role of place, culture and social norms in shaping adaptation and resilience processes stating that 'locality, place and cultural icons are likely to loom large in the adaptation process'. Hence, by grounding this thesis in theories of islandness, closer attention can be paid to the unique island-specific, place-based norms and cultures that contribute to adaptation and resilience in island settings. While there is no one way of defining islandness (Hay, 2006), Stratford et al. (2011) present a useful narrative asserting that islandness is the influence of an island's physical attributes on its cultural, historical, social, and political dimensions. Within this body of literature on islandness, the emergent distinctiveness of islands is broadly understood through patterns of spatial development: boundedness, smallness, isolation and fragmentation (Baldacchino, 2008). Thus, paying attention to such island-specific spatial and cultural attributes in studying resilience, allows a more island-centric understanding of resilience and helps to unpack their 'irreducible uniqueness' (Hay, 2006: 212).

1.4 Defining Research Questions and Approach

As discussed in section 1.1, previous research on SIDS and food systems has been heavily focused on identifying vulnerabilities, obscuring understandings of how SIDS might adapt, recover, and maintain food system resilience in the face of uncertainties and challenges. Such studies tend to view islands through discursive constructs that perpetuate essentialist and oversimplified narratives and that present island communities as disempowered, economically and politically, and lacking adaptive capacity.

To this end, the overarching objective of this thesis is to:

examine the opportunities and challenges to achieving a resilient food system in Small Island Developing States (SIDS)

To address this question, within the specific context of the Maldives, I ask the following key research questions:

1. **How is the food system in the Maldives organized in terms of international and domestic trade, production, distribution, and consumption of food?**
2. **What are the main risks and challenges to the food system in the Maldives?**
3. **How do the government, local councils and communities respond to multi-scalar risks and build and maintain food system resilience?**

It is critical that island-focused research does not overlook the social, political, economic, and cultural characteristics that shape their resilience, thereby obscuring insights into the capacities and conditions across different SIDS contexts. This underscores the need for human-centred, place-based approaches to studying resilience. Thus, I address these research questions by conducting place-based empirical research on two islands in the Maldives: Felidhoo and Magoodhoo. Based on the SES resilience framework coupled with theories of islandness, this thesis is situated within critical food system resilience and island studies. This thesis views human agents as pivotal within SES systems in shaping interactions across scales and in building resilience, thus noting that social settings and interactions play a pivotal role in influencing how people perceive food systems, how they understand risks and disruption, and how they adapt and react to these risks and disruptions (Halkier, 2010). As such, this thesis not only describes food systems but also investigates

the meanings of food and food system processes in everyday life. Thus, this thesis provides insights grounded in people's experiences and narratives (Bevir and Blakely, 2018). It uncovers the complexities of islander food systems and its resilience through a focus on food-related routines and habits of everyday life in the islands.

This thesis adopts a case study approach employing qualitative data collection, specifically semi-structured interviews and participant observations. This qualitative approach involves immersive experiences such as walking and chatting, observing, engaging, and identifying the various ways in which people interact with and organize their food systems on a day-to-day basis. Data collection took place between October 2021 and July 2022 and included three visits to each of the case study islands. A total of 139 interviews were conducted: 54 interviews with residents in Magoodhoo Island, 57 in Felidhoo Island, and 28 with relevant government agency staffs, civil society members, prominent food traders and development agency staff in Malé. In addition, participant observation was important to capture the intricate details of the ways that people engage with and shape food systems in their daily lives. A 'go-along' technique (Kusenbach, 2003) was employed, where informal conversations and observations took place as people carried out their daily activities. This facilitated increased participant involvement, unveiled the mundane and routine aspects of life, illuminated multiple forms of resilience building, and aided the documentation of the unique practices and behaviours of islanders (Vannini and Taggart, 2012).

1.5 Thesis Structure

The thesis contains eight chapters and an appendix. This introductory chapter has provided the rationale for studying resilience of food systems in SIDS, the significance of using the Maldives as a case study, a background to the theoretical foundations of the thesis, the aims and objectives of the thesis, and an outline of the main research questions. It also provided a summary of the research approach and methods and the structure of the thesis.

Chapter two provides a critical review of relevant debates and contemporary discourses on the three main themes addressed in this thesis: island vulnerabilities, resilience, and food systems. It justifies the focus of this thesis on the resilience of food systems in SIDS. It argues that there is a need to enhance knowledge on how islandness contributes to enhancing food system resilience and adaptive capacities in SIDS. Food systems are argued

to be a useful lens through which to study resilience in SIDS, particularly given the overwhelming focus on food system vulnerabilities and threats in SIDS that obscures understandings of islanders' adaptive capacities and resilience. Chapter two also justifies the use of an SES resilience framework and theories of islandness as appropriate theoretical foundations for studying the resilience of food systems in SIDS.

Chapter three explains the research approach, including the use of case studies grounded in immersive qualitative data collection methods aimed at uncovering the ordinary, mundane, everyday life in islands. It justifies this qualitative approach as a suitable methodology to study resilience as it can highlight the place-based and nuanced understandings of the human entanglements that shape resilience in unique ways in island settings. This chapter also reflects on the overall research process, highlighting the ways that my own positionality may have influenced the research process, both creating challenges and advantages.

Chapter four provides the overall context of the Maldives, including its geographical, economic, demographic, political, and health and nutritional status. It reveals similarities between the Maldives and other SIDS while also underscoring its uniqueness. Shared similarities in SIDS include island geographies characterized by small size, spatial dispersion, and low-lying nature of the islands, making them highly susceptible to environmental and development challenges, including the impacts of climate change. This chapter also details the economic and political history of the Maldives, as it relates to food security, to demonstrate the unique ways in which historical antecedents have shaped the contemporary food system.

Chapter five presents the empirical findings in relation to the first research question: ‘How is the Maldivian food system organized in terms of international and domestic trade, production, distribution, and consumption of food?’ It examines the different activities that underpin the Maldivian food system, foregrounding place-based norms and practices of food system dynamics, actors involved, opportunities as well as the complexities people navigate to meet their food needs. It argues that food consumption patterns are grounded in long histories of culture, traditions, and religious norms, which foster a sense of community in the islands. In terms of domestic trade, it illustrates the strong presence of

social connections and networks that help people gain access to a reliable supply of food. It also shows that there is diversity in food available in the islands through access to global markets and imports, and this creates an adaptable food environment.

Chapter six presents the findings relating to the second research question: 'What are the main risks and challenges to the Maldivian food system?' This chapter illustrates how people perceive the multiple, diverse, and interconnected risks and challenges to their food system. It explores everyday risks and challenges to the food system as well as the impacts of the COVID-19 pandemic as a sudden shock to the food system. This chapter illustrates that some risks and challenges are perceived to originate globally while others are more localised. However, the impacts are felt across the different spatial scales of the food system, from the global to national to the local island level. It argues that impacts worsen further down the spatial scales, resulting in inequalities in access to food and quality of food available – showing scales are not bounded or constrained, but rather fluid and interconnected. In exploring the impacts specific to the COVID-19 pandemic, this chapter shows that despite the initial shock and panic induced by the pandemic, the negative consequences of the pandemic were absorbed across spatial scales as various actors coordinated and managed the impacts.

Chapter seven addresses the third research question: 'How do governments, local councils and communities respond to the multi-scalar risks and build and maintain food system resilience?' This chapter explores this question in two parts; first, it shows how the different actors, across three levels of governance (state, local councils, and communities) adapt to the everyday risks and challenges to the food system; and second, it provides examples of efforts to support food system resilience from these three levels of governance in the specific context of the COVID-19 pandemic. This chapter argues that building and maintaining resilience in dispersed or archipelagic island geographies requires state action alongside decentralization of resources to the local level, and close coordination across scales through multi-level, adaptive forms of governance.

The concluding chapter, Chapter eight, discusses the key findings under each research question in relation to the wider literature on food system resilience and islandness, as reviewed in Chapter two. This chapter demonstrates that despite risks and challenges to the

food system, as perceived and experienced by islanders in the Maldives, there is resilience that enables the food system to adapt and recover from shocks. This resilience is linked to three factors; (i) strong and diverse connectivity across scales, that enables reliable and consistent food supply; (ii) place-based social and cultural norms and everyday agency; and (iii) multi-level governance that enables effective and collaborative response to disruptions and shocks to the food system. This thesis contributes to the growing body of literature that foregrounds the resilience of islands, through the lens of food system in the Maldives, showing that islandness is not a mere obstacle but also an opportunity to build and maintain resilience.

The appendix section contains an anonymised list of participants, an example of the interview guide used for the semi-structured interviews, thematic mapping of key themes/ideas and evidence of ethical approval, including plain language statements and other relevant ethical forms used.

CHAPTER 2
VULNERABILITY, RESILIENCE AND FOOD SYSTEMS IN SMALL ISLAND DEVELOPING STATES

This chapter reviews scholarly discourses on the three main themes of the thesis: island vulnerabilities, resilience, and food systems. I argue that there is a need to improve knowledge on how islandness contributes to building and maintaining food system resilience and adaptive capacities of Small Island Developing States (SIDS). The vulnerability of food systems, globally and in SIDS, has recently received significant policy and scholarly attention owing to factors such as escalating threats posed by climate change, recent disruptions caused by the COVID-19 pandemic, and the ongoing global impacts of geopolitical conflicts. Less attention has been paid to the ways in which food system resilience is built and maintained in the face of everyday and sudden disruptions and threats.

The first section (2.1) examines literature on islands, islandness, and SIDS' vulnerability. It demonstrates how representations of islands are often oversimplified and homogenised. It illustrates that, despite a shift from earlier colonial and western discourses about islands, islands - particularly SIDS – continue to be envisaged as places of overwhelming vulnerability and in need of external assistance. This emphasis on vulnerability is problematic because it obscures insights into the resourcefulness and resilience of islands and islanders in dealing with the myriad of socioeconomic and environmental challenges they face. Given these occlusions, this section argues the need for a greater focus on SIDS' resilience.

The second section (2.2) examines literature on resilience in the context of SIDS. It begins by critically reviewing the concept of resilience, demonstrating how it has become increasingly popular as a generic approach to understanding complex, interconnected and multi-scalar Socio-Ecological Systems (SES), such as food systems, encompassing both ecological and social aspects of resilience. However, despite the growing popularity of resilience as a concept for understanding SES, it has been criticised for oversimplifying

social relations, structural issues, and place-based internal dynamics (such as power, agency, politics, and culture), favouring instead technocratic solutions that do not always translate well in different places and contexts. This section argues for a more human-centric examination of resilience that illuminates the agency of islanders.

The third section (2.3) reviews literature on food systems and food security in SIDS. It begins by defining the concepts of food systems and food security. In this thesis, the focus on food systems provides a lens through which to examine the resilience of SIDS, because food systems are highly complex, multi-scalar, and interconnected systems that are increasingly challenged by the impacts of climate change, conflicts, pandemics and other global and local processes. This section goes on to discuss food system scholarship that applies SES resilience theories to better understand how food systems are sustained and changed in the face of disruptions and challenges. It demonstrates a gap in food system studies in SIDS: i.e. limited empirical examination of place-based aspects of resilience of islands and islanders across the various scales and dimensions of food systems.

The concluding section (2.4) explains the use of an SES resilience framework, alongside theories of islandness in the study of food systems in SIDS. It argues that a combination of these theories supports analysis of island food systems and their resilience through an interconnected, multi-scalar, holistic, place-based and human-centric lens.

2.1 Islands, Islandness, SIDS and Vulnerability

This section reviews literature on islands, islandness and SIDS vulnerability. It begins with a critical analysis of the different ways in which islands are represented and viewed, starting from colonial island imaginaries to more contemporary perspectives. It shows that islands or the notion of being in an island (islandness) are complex and contested. It argues that certain spatial characteristics of islands (i.e. smallness, isolation, boundedness and fragmentation) are overwhelmingly used to demarcate SIDS as sites of vulnerability, that lack resources, agency and adaptive capacities. This reproduces colonial and oversimplified discourses of islands, hindering useful insights into how islandness may also contribute to resourcefulness and enhanced capacity of islands and islanders to adapt, recover and build resilience.

2.1.1 Islands and Islandness

> Certain natural environments have figured prominently in humanity's dreams of the ideal world: they are the forest, the seashore, the valley and the island. (Tuan, 1990: 247)

As the quote above suggests, islands have been represented as idyllic and dreamy places reflecting early romanticized and Western viewpoints of islands. According to Kothari and Wilkinson (2011) these highly romanticized island imaginaries emerged alongside colonial explorations and 'discoveries' of islands. In such colonial imaginaries, islands initially appeared as unfamiliar and enigmatic, which, upon being 'discovered' through European explorations and people's actual encounters with them, began to be simultaneously characterized as 'places of exquisite natural beauty and abundance of natural resources and as desolate, isolated outposts either uninhabited or populated by 'uncivilised' people'(Kothari and Wilkinson, 2011: 1398). From such viewpoints, the native inhabitants of small tropical islands were also conceived in highly essentialized and racialized ways that justified European power over them (as places to be colonized) and legitimised the appropriation of these places and forcible relocation of populations in order to pursue what was considered to be better and more effective uses (e.g. as military outposts) (ibid).

More recently, islands have been viewed as paradoxical spaces, through contrasting discourses as summarized by Stratford (2003), which in some ways reproduces the earlier colonial viewpoints of islands, and in some ways challenges them:

> Islands … absolute entities … territories, territorial; relational spaces – archipelagos, (inter)dependent, identifiable; relative spaces – bounded but porous; isolated, connected, colonized, postcolonial; redolent of the performative imaginary; vulnerable to linguistic, cultural, environmental change; robust and able to absorb and modify;… utopian and dystopian, tourist meccas, ecological refugia…(Stratford, 2003: 495).

In these more recent narratives, islandness has become a dominant term to be used when talking about islands and everything they constitute; 'a refined and judgement-free sense of island living' (Baldacchino, 2020b: 24). While there is no single way of defining islandness (Hay, 2006), Stratford et al. (2011) usefully assert that islandness is the influence of an island's physical attributes on its cultural, historical, social, and political dimensions. In this viewpoint, islandness is a complex expression of identity attached to places smaller

than continents and surrounded entirely by water (Stratford, 2008). Within this body of literature on islandness, the emergent distinctiveness or essence of islands is broadly understood through distinguishing, yet contested, patterns of spatial development: boundedness, smallness, isolation and fragmentation (Baldacchino, 2008, Kelman, 2020). According to scholars such as Baldacchino (2020b) these four space-related variables, and their complex and contested interconnections, help us understand islands critically.

Bounded or being bordered, are the most defining, yet contested metaphors of islandness (Baldacchino, 2020b), setting the stage for land-sea dialectic (DeLoughrey, 2007). Some scholars view them as having 'tangible coastal boundaries', acting as 'nature's definitive and unmistakable way of signalling to islanders that they constitute a distinct and separate people ... a geographical condition that inherently implies both a sense of togetherness and distinctiveness, inclusion and exclusion' (Baglole and Weale, 1973: 105-106). Being bounded and separated geographically also implies a sense of psychological and societal boundedness that contributes to a strong attachment to a place or one's island (Foley et al., 2023), supporting a shared sense of identity, solidarity, and a tight network of community and kinship. Some also argue that this boundedness makes it easier to control and manage resources (Kelman, 2020) in islands, by having clearly defined jurisdictions of power. Some of these narratives tend to support assumptions that view islands as separated and confined, defining them through their sea borders and overlooking connectivity, heterogeneity, and complexities (Hau'ofa, 1994).

Scholars such as Pugh (2013), Hayward (2012) and Baldacchino (2020a) have in recent times argued against perceptions that portrayed islands as inward-looking and isolated places by revealing their historical and geographical interconnectedness. For example, Pugh (2016) argues that islands are shaped by the movements of people, ships, and trade, bound together through complex and evolving relationships and arrangements. As such, rather than being isolated, unchanging, and uniform locations (Bernardie-Tahir and Schmoll, 2014), islands are shaped by large-scale global movements of people, goods, capital, and information, as well as more localized processes of daily transportation, movement within public spaces, and the circulation of material objects in everyday life (Hannam et al., 2006). Within this island-connectivity and mobility literature, the sea

serves as a conduit (Hau'ofa, 1994) through which continuous movements thrive, facilitating connections between islands (Hayward, 2012). The notion of the "aquapelago" captures this more holistic nature of the connections between land and sea in island contexts (Hayward, 2012), foregrounding interactions between and among islands (Baldacchino, 2020b). Thus, instead of viewing islands as bounded, fragmented and isolated pieces of land, islands are viewed as archipelagos, a set of islands that are connected in complex ways (Stratford et al., 2011). These insights into connectivity also have implications for how island borders are viewed, which has become central to the construction of islandness (Hay, 2006). While islands do have a certain spatial boundedness and finiteness to them (Conkling, 2007), they are not fixed, but always shifting and changing depending on the movements of winds, currents, tides and human activities (Beer, 2003). As such, the island shoreline is 'a place of uncertainty and instability' (Arnall and Kothari, 2020: 894).

Similar to the notions of boundedness, isolation and fragmentation, smallness is also a highly debated and contested islandness discourse. Smallness generally relates to being small in terms of land area, population, resources and livelihood opportunities (Foley et al., 2023). While mostly a description of the size of an island, smallness is also often interpreted as an 'inherent' characteristic of vulnerability, helplessness and precarity (Nunn, 2004). For example, Royle (2001) states that 'there are few if any benefits from being of small scale… usually being small scale is simply and obviously a problem' (ibid: 42). He goes on to observe that, 'isolation together with scale, often distance islands from political power' (ibid: 43) and later notes that, 'small islands are places without power' (ibid: 57). Similarly, Semple (1911) claimed that island societies were cursed by restricted space and Vidal de la Blanche noted that islands were too small to protect human societies from the 'risk of destruction' (1926: 158).

Other scholars such as Foley et al. (2023) and Baldacchino (2020b) caution against applying straightforward notions of smallness to islands. For example, Baldacchino (2020a) argues that there are no definitive thresholds to establish the size of a small island, although they have been proposed (such as population, size of economies). For example, to make this point clear, he states:

> Is Greenland, the world's largest island at 2 million km^2 but with a population of less than 60,000, small or large? How to come to terms with places like Kiribati, a Pacific archipelago of hardly 100,000 residents but steward over an oceanic space larger than the land area of Europe? (Baldacchino, 2020b: 26)

Similarly, in Our Sea of Islands, Epeli Hau'ofa reveals the inadequacy of narrow perceptions of small islands:

> … if we look at the myths, legends, and oral traditions, and the cosmologies of the peoples of Oceania [islands], it becomes evident that… their universe comprised not only land surfaces but the surrounding ocean as far as they could traverse and exploit it…Their world was anything but tiny. (Hau'ofa, 1994: 152)

Scholars such as Kelman (2018) and Foley et al. (2023) have also argued that smallness is not always an accurate way of defining or thinking about islands, and note that definitions and understandings of smallness vary across disciplines. According to Foley et al. (2023) for most geographers, smallness is linked to other spatial factors, such as isolation and fragmentation, and is used to explain how distance shapes a range of social practices in islands, including adaptation measures to various socio-economic and environmental changes (McNamara et al., 2019). For economists, small size is generally viewed as a challenge, because it prevents island economies from fully utilizing economies of scale (Pereira and Steenge, 2022). From this viewpoint, it is believed that 'inherent' challenges associated with smallness makes island economies more vulnerable to exogenous shocks (Briguglio et al., 2009, Pereira and Steenge, 2022). For some political scientists small is considered good because it reduces the distance between rulers and ruled, resulting in a more representative government (Anckar, 2008) with enhanced opportunities for monitoring and controlling of resources (Veenendaal and Corbett, 2019). While for some social scientists, smallness can create authoritative leadership styles, if homogenous values and dominant cultural norms are mobilized, leading to corruption at times (Baldacchino, 2012).

Thus, through this contested and complex understanding of islandness, this section has shown that viewing islands through a homogenised, simplified lens is problematic. Baldacchino (2020b) asserts that islands are not simply scaled-down versions of larger, continental places, but have an 'ecology' of their own. They are heterogeneous, which Hay

(2006: 212) refers to as ‘irreducible uniqueness’. Yet despite these advances, homogenizing accounts of islands persist in contemporary policy and development discourses. Such homogenising discourses around the defining features of SIDS provide a foundation for the continued identification of islands as sites of vulnerability.

2.1.2 Small Island Developing States and the Vulnerability Context

SIDS were first officially recognized as a distinct subgroup of islands by the United Nations (UN), in the 1992 Earth Summit in Rio de Janeiro (UNCTAD, 2020). They were acknowledged as a special case for environmental concerns, considered as extremely vulnerable to global warming and sea level rise, and identified as facing specific development issues. In 1994, the first Global Conference on the Sustainable Development of SIDS was held in Barbados, a landmark conference, as it was the first time a UN conference was entirely devoted to SIDS. Acknowledging their ‘shared’ vulnerabilities and development needs (Guell et al., 2022) the UN currently recognizes 57 SIDS in the Caribbean, the Pacific, Atlantic, Indian Ocean, and South China Sea (United Nations, 2023)

However, the special needs of SIDS, or ‘Island Developing Countries (IDCs)’ as they were previously referred to, had been recognized much earlier, in the 1970s, due to strong political advocacy led by these nations (UNCTAD, 2021). According to UNCTAD (2021), the 3rd UNCTAD quadrennial conference in Chile in 1972 formally recognized and discussed the specific geographic and socioeconomic problems faced by IDCs, sedimenting the view that they were remote and insular. In these discussions, IDCs continued to strongly emphasise the specific disadvantages of being surrounded by seas, such as economic isolation, distance from major markets, and transportation and communication challenges (Grote, 2010). In particular, the small size of these nations was highlighted as a significant constraint, limiting domestic resources and economic diversification. These factors were framed as "natural handicaps" unique to island nations, reinforcing their position as particularly vulnerable. This framing was critical for SIDS to ensure they received adequate global support to address their growing needs and vulnerabilities (ibid). As a result of this advocacy from SIDS, the specific vulnerabilities associated with ‘smallness’ became a critical policy concern globally, recognising islands

as places in need of special assistance (Fry, 2019). This eventually led to the UN formally replacing the term 'IDCs' with 'SIDS' in the 1994 Global Conference on Sustainable Development held in Barbados (UNCTAD, 2021).

The Barbados Programme of Action (BoPA), a declaration issued at this 1994 Global Conference covers the specific development challenges and needs of SIDS and remains critical to SIDS policy and advocacy framing to date. As highlighted earlier, this declaration was driven by the concerted political efforts of SIDS countries. While initially, these vulnerabilities were discussed in relation to the environment and ecology, the BoPA broadened these to include other challenges, such as excessive dependency on trade, high population densities, increased pressure on limited resources, overuse of resources, limited domestic markets, and limited export volumes leading to high freight costs for remote locations and islands (UNCTAD, 2021, Bruckner, 2013). Within this development context, SIDS are assumed to share common characteristics, which make them particularly exposed to physical, environmental and economic events, including disasters, and emphasize their relatively poor ability to respond to those catastrophic events due to their physical, demographic, social, economic and environmental characteristics (Pelling and Uitto, 2001, Wong, 2011).

These often homogenised accounts of the disadvantages of SIDS stem from the body of scholarly literature that views SIDS exclusively or overwhelmingly through a 'vulnerability' or 'deficit' lens. Some studies have associated the smallness of SIDS with limited resources, where island economies are often described as 'insular', 'remote', 'isolated' and 'lacking' and in turn this is argued to lead to low adaptive capacity (Nurse et al., 2001). Such language frames small islands as 'inherently' dependent on foreign trade (Briguglio, 1995). In more recent times, Kakazu (2007), who looked at the characteristics of small Pacific Islands, identified their small size as a defining feature and associated this smallness with other development challenges such as barriers to accessing markets, limited division of labour, and high dependency on tourism. Similarly, House (2013) identified small populations and geographic size as challenges accentuated by a high dependence on aid and donor funding. He further noted that these constraints limit the ability of SIDS to capitalize on trade liberalisation and globalization. Others argue that a combination of these

vulnerabilities of SIDS leads to greater exposure to environmental shocks, including climate change (Bruckner, 2013) and external economic shocks (Connell, 2013).

Such narratives tend to homogenize SIDS as being overly dependent on external resources (McGillivray et al., 2010), facing a precarious future (Nunn and Kumar, 2019), disempowered (Zhang et al., 2023) and in some instances their fate is assumed to lie solely in the hands of others (Easter, 1999). This also paves the way for SIDS to be subjected to exploitation and extraction, as well as being perceived as lacking power to influence actions at a global scale (Connell, 2013). Such narratives, reproduce the early colonial and Western perceptions of islands, as places of overwhelming vulnerability and in need of external assistance. Therefore, while SIDS are highly vulnerable to socio-economic and environmental changes, an overemphasis on their vulnerabilities and dependence on others, diverts attention from how they can also be resourceful in adapting to, and recovering from, socio-economic and environmental changes. According to Kelman and West (2009), the overemphasis on vulnerabilities obscures the highly place-based sociocultural, economic and political dynamics of island resilience. Thus, the primary focus of this thesis is on the resilience of SIDS, to understand how they adapt to, address and recover from adversity, and the opportunities and challenges they face in doing so.

2.2 Resilience and SIDS

This section reviews literature on resilience more generally and in the specific context of SIDS. It begins with a critical overview of the concept of resilience as applied to socio-ecological systems (SES), arguing that the concept tends to oversimplify social relations, structural issues, and place-based internal dynamics, such as power, agency, politics, and culture. It shows that an oversimplification of resilience can contribute to the development of technocratic solutions that do not translate well in some places and contexts. Here, I argue the need for more human-centric examinations of resilience that are attentive to the unique place-based social dynamics of islands and the agency of islanders.

2.2.1 Unpacking Resilience: Conceptualisation and Critiques

The concept of resilience is contested and evolving. Current understandings of resilience stem from several disciplines, including psychology, engineering and ecology (Holling, 1973). Most scholars (Cutter et al., 2008, Berkes et al., 2003, Folke, 2006) contend that

Holling (1973) pioneered the scientific conceptualization of resilience, viewing it through the lens of ecological systems, where resilience was defined as the capacity to rebound or restore some degree of equilibrium following disturbances. In this context, resilience was not associated with transformation or change but rather with the preservation of the existing status quo (Mitchell and Harris, 2012).

Despite its origins in ecology, resilience thinking has been increasingly adopted as a generic approach to understanding SES (Folke, 2006, Adger, 2000). An SES is understood as a coupled human-environment system, recognizing the interlinkages between society (i.e. social and economic factors) and natural systems (Petrosillo et al., 2015). This term underscores the holistic perspective of humans-in-nature (Berkes and Folke, 1998), highlighting that a distinction between social and ecological systems is artificial and arbitrary (Folke, 2006). It emphasises the significance of humans, their interactions, perceptions and behaviours in shaping the structure and functions of systems (Petrosillo et al., 2015). According to Gunderson (2000), humans are unique in SES due to their ability to create novel approaches to change that can transform the future of a system. Overall, SES thinking requires a systemic approach that recognises the profound interconnections among social, economic, ecological, cultural, political, and technological elements (amongst others), constituting a complex system that evolves both spatially and temporally (Petrosillo et al., 2015).

The inclusion of the concept of resilience in SES frameworks appeared as a result of greater attention and awareness on the links and feedback mechanisms between social and environmental systems (Folke, 2006, Adger, 2006, Gunderson, 2000), as detailed above. This development drew on concepts of social resilience already developed in the social sciences (Adger, 2000), moving beyond describing resilience in terms of ecological systems. It allows for the possibility that human agents can monitor resilience and intervene to adjust system attributes in response to or in anticipation of disturbances (Folke and Gunderson, 2010, Walker et al., 2004). Currently, resilience is widely considered a useful concept for explaining how socio-ecological systems resist or undergo change (Mikulewicz, 2019).

Within this SES narrative of resilience, adaptation and adaptive capacity become particularly significant. Adaptation and adaptive capacity apply to the patterns and processes of behaviour that facilitate change, aiming to keep a system within the boundaries of critical thresholds (Folke, 2006, Walker et al., 2004). This involves the ability to learn from disruptions and past experiences, as well as the capacity to prepare for and adapt to uncertainty and change (Berkes et al., 2003). Essential components for building adaptive capacity include self-organization, coping with uncertainty, responding efficiently and effectively to disturbances, and maintaining a reserve of resources (Berkes et al., 2003, Walker et al., 2004). Adaptive capacity thus establishes a link between resilience and vulnerability by bringing questions of agency, power and marginalization into resilience thinking (Gallopín, 2006).

The current SES resilience scholarship has identified several factors that contribute to enhancing resilience. These include factors such as: diversity and flexibility (e.g. maintaining diverse options to respond to change and disturbance); robust connectivity between systems, actors and social groups, and capacity for collective action; effective governance and institutions; inclusive and equitable participation and decision making; social values and structures that enhance cooperation and access to resources; psychosocial factors (risk perceptions, religion, faith-based perceptions, culture); and adaptive learning and innovation in response to changing circumstances (Béné et al., 2014a, Jahan et al., 2015, Biggs et al., 2012, Bene, 2020, Bahadur et al., 2010, Goerner et al., 2009, Bernard and Seyoum Taffesse, 2014). This list is not exhaustive, and there is a need to further unpack and understand how these factors manifest in specific contexts. Section 2.2.2 reviews relevant social dimensions of resilience as applicable to SES.

Despite the increasing use of the concept of SES resilience across a diverse range of disciplines (Gunderson, 2000), the concept of resilience has fuelled ongoing debates and critiques, especially from social and political scientists (Cote and Nightingale, 2012, Davidson, 2010, Cretney, 2014, Mikulewicz, 2019). Some argue that resilience is ambiguous and poorly understood by those who offer to deliver it to people on the ground (Mikulewicz, 2019). Critics argue that this ambiguity surrounding resilience has turned it into a loose metaphor, attracting a diverse range of interest groups and political agendas,

in most cases leading to its appropriation as a tool for advancing neoliberal development policies (Cretney and Bond, 2016). For example, Mikulewicz (2019) review of climate change and development projects in the Global South found significant disparities between the objectives of donor projects and the local community's perception of what constitutes resilience. This review showed that while donors often emphasised initiatives such as the commercialization of agriculture and diversification of livelihoods, locals prioritised more practical needs such as improved housing, access to water, roads, training and agricultural courses to enhance their abilities to better cope with climate impacts such as droughts. Other examples include devolving responsibility to the local level without adequate resources, knowledge or capacity building (Cretney, 2014).

In addition to a mismatch between donor and local perspectives on resilience, resilience thinking is also argued by critics to oversimplify social relations, structures and elements, resulting in internal and structural inequalities, and non-transformative solutions (Mikulewicz, 2019). Some social scientists argue that lack of emphasis on crucial elements of social systems - such as agency, politics and power - has resulted in resilience emerging as a discourse that can be easily manipulated to support hegemonic neoliberal social and economic policies (Cretney and Bond, 2016, MacKinnon and Derickson, 2012). According to such critics, a resilience-centred approach that does not adequately take into account social relations and structures results in interventions that disproportionately benefit the political elite, men and the local 'winners' of adaptation (Adger et al., 2004). This creates power imbalances within local communities, raising questions about whether resilience relates more to the nature of the system or to the individuals within it (Davidson, 2010). According to Baldacchino (2020a), resilience efforts that overlook power also risk hindering transformation, a potential outcome of resilience, due to the influence of power structures and actors. Such interventions tend to neglect the agency of communities and individuals in resilience efforts, dismissing the local strategies and capacities developed for coping, accommodating, absorbing, and transforming, such as Indigenous knowledge, cultural heritage, occupational multiplicity, flexible specialization, and lived experiences (Baldacchino and Bertram, 2009).

In light of the above critiques, there is a need to ensure that critical inquiries of resilience and adaptation of SES are attentive to social dimensions, including local strategies, capacities, power, agency and lived experiences of people. Mikulewicz (2019) asserts that despite advancements in understanding of the resilience of SES, empirical research that adequately grants local people an opportunity to voice their adaptation needs and priorities are rare, with positivist approaches still dominating adaptation studies (Bassett and Fogelman, 2013). This points to a need for human-centred understanding of adaptation and resilience of SES, to foreground how resilience manifests both materially and discursively in varying geographical contexts, and to contribute to the development of resilience as a more rigorous and critical area of social research.

2.2.2 Social Domains of SES Resilience

This section unpacks some of the key social factors that contribute to building or undermining the resilience of SES. According to Adger (2000), social resilience denotes the ability of a community to cope with disturbances or change and to maintain adaptive behaviour. It considers the economic, institutional and social dimensions of a community, recognising the ability of people to self-organise. During periods of rapid change and abrupt disruptions to a system, social capital or social and community capacities can enhance or foster creativity and innovation while bolstering adaptability. Pretty and Ward (2001) define social capital as relationships or networks among a group of social actors, characterized by trust, reciprocity, shared norms, rules, sanctions, and interconnectedness. Social capital then is essential for fostering adaptive capacity and collaboration (Adger et al., 2003, Pretty and Ward, 2001, Brown, 2002). Trust assumes particular importance here, as argued by Shannon (1990), it fosters predictability in social interactions, fosters a sense of community, and facilitates cooperative efforts. It underscores the ways in which interconnectedness among individuals within a community can foster resilience (Aldrich, 2011, Norris et al., 2008).

In a recent assessment of the social dimensions of resilience in linked socio-ecological systems, Cinner and Barnes (2019) categorized key aspects of resilience into six broad domains. These included: availability of diverse assets for individuals to use; ability and flexibility to change strategies; capacity to organize and act collectively (i.e. governance);

ability to learn and respond to change; socio-cognitive influencing human behaviour; and agency to determine whether to change or not. Diversity in assets is linked to having access to a range of financial, technological, and service-related resources such as healthcare that enable people to better adapt to changes (ibid). This is linked to flexibility, which indicates the capability of individuals and institutions to navigate change by swiftly and effectively transitioning between strategies (ibid). This concept is linked to system diversity and redundancy, providing a form of 'insurance' against shocks that could otherwise lead to catastrophic outcomes (ibid). However, Cinner and Barnes (2019) emphasise that flexibility is contingent upon individuals' and communities' capacity and willingness to embrace change and adopt alternatives, which may sometimes be constrained by internal factors such as occupational identity and attachment to place.

Social organization plays a pivotal role in either fostering or impeding resilience, by influencing how people exchange knowledge, collaborate and access resources beyond their immediate reach (Cinner and Barnes, 2019). This encompasses the social and institutional connections/networks among actors operating at various scales, laying the groundwork for more participatory and deliberative governance structures where decision-making authority is dispersed across diverse sources (ibid). These structures consist of both formal and informal relationships, such as social networks and institutions operating at different scales, which facilitate community cohesion, effective leadership, and individual support for collective action to bolster resilience (Bodin and Prell, 2011, Boyd et al., 2008, Béné et al., 2014a). Berkes et al. (2003) assert that SES consists of multiple levels of networks that influence system functioning across various scales and levels to cope with diverse external and internal disturbances, which is evident in multi-level governance (i.e. adaptive governance).

Within the growing body of literature in what is referred to as adaptive governance of SES, the significance of individuals and their social connections and networks are emphasized as the glue that binds the system together (Tuda et al., 2021, Folke et al., 2005). Folke et al. (2005) conceptualize adaptive governance as an ongoing problem-solving process, where institutional arrangements and ecological knowledge are continuously tested and adjusted in a dynamic, self-organized learning process. This approach suggests a shift away

from merely understanding individual components of an ecosystem to comprehending the dynamics of the entire socio-ecological system to enhance its capacity to adapt to changes and respond to uncertainties (Gunderson and Light, 2006, Brunner, 2010). Adaptive governance systems are therefore characterized as multi-level, as bridging local, national, and international levels (Boyd et al., 2008). They are also composed of collaborative, flexible and learning-based institutional structures (Folke et al., 2005). Thus, several scholars position adaptive governance as central to addressing complex, interdependent social and ecological systems, which are consistently changing and faced with uncertainties (Folke et al., 2005, Boyd and Folke, 2012).

In this resilience literature, scholars argue that adaptive governance requires polycentric institutional arrangements, characterized by semi-autonomous decision-making units operating at multiple scales (Ostrom, 1996). These units encompass local and higher-level organizational tiers and strive to strike a balance between decentralized and centralized control (Andersson and Ostrom, 2008, Ostrom, 2005). In polycentric systems, each governing unit operates independently within a defined geographic area and domain of authority, linking common issues horizontally and nesting vertically within broader governance units (Ostrom, 2005). This allows for higher governance levels to step in when lower levels collapse and vice versa (Andersson and Ostrom, 2008). Polycentric governance broadens the spectrum of response options, enabling more precise management of uncertainty and change through adaptable coping strategies that respond flexibly to external pressures and rapid changes (Ostrom, 2005). It is a form of 'nested governance', a hierarchical framework in which coordination may occur at larger scales while allowing for flexible implementation at local levels (Cash et al., 2006, Berkes et al., 2003). Thus, institutions within polycentric systems have the capacity to act semi-autonomously, facilitating adaptable, prompt, and inclusive responses to local challenges (Matthews et al., 2022), thereby providing flexibility by which actors can maintain resilience (Belmar et al., 2016). According to Matthews et al. (2022), such an architecture for governance contributes to strengthening inclusion for women, youth and marginalized people, which is vital for inclusive resilience in SES.

However, polycentric institutional structures have also received criticism. For example Belmar et al. (2016), in their assessment of water resource management in SIDS, pointed out that polycentricity overlooks the political dimensions of scale in governance. Drawing evidence from the Caribbean (Bishop and Payne, 2012), they highlighted that despite the presence of strong regional organizations implementing climate change adaptation projects and playing crucial roles in steering actions towards locally appropriate solutions, these organizations are heavily influenced by powerful donors who fund their resources. As a result, their actions often echo and endorse external agendas rather than locally appropriate or locally-led solutions. Therefore, Belmar et al. (2016) cautioned against a conceptual reliance on polycentricity as a way to understand institutional structures, as it can favour unfavourable and inequitable local solutions.

Some scholars advocate for decentralized governance as a means of enhancing the resilience of SES, asserting that it brings government closer to the people in terms of institutional accessibility. This enables decentralized authorities to be attuned to the needs of vulnerable and marginalized populations (Béné et al., 2008), leading to the development of more equitable and inclusive local solutions. However, Steel and Weber (2001) caution that excessive decentralization may undermine its intended objectives, hindering the potential for collective action across various organizational levels. Similarly, Andersson and Ostrom (2008) state that an overemphasis on the local level is problematic, as it requires local actors to have the power to govern their resources effectively.

The remaining components of Cinner and Barnes (2019) social domains of resilience include learning, socio-cognitive constructs of people and agency – which are closely interlinked. Learning reflects people's capacity to discern change and evaluate potential risks and response strategies (ibid). This goes beyond mere access to information, encompassing memories of past experiences and exposure to precarious situations (Cinner and Barnes, 2019) which shapes perceptions of disasters, social norms and cognitive biases. According to Cinner and Barnes (2019), preparedness for and adaptive responses to extreme events are positively correlated with the proximity and intensity of previous experiences. Additionally, political, cultural, or religious beliefs can also shape individuals' receptiveness to generating, absorbing, and adapting to changes (ibid). Consequently, some

studies include religion or belief systems as indicators of social or community resilience (Saja et al., 2019, Frazier et al., 2013). Saja et al. (2019) incorporate these systems as indicators of social resilience asserting that social beliefs can be crucial in determining resilience to disasters. They argue for the use of social beliefs as a form of capital in communities with a strong faith or belief system.

Agency relates to power dynamics and is an overarching domain that determines resilience of a SES. According to Cleaver (2009), agency refers to the ability of capacity to achieve intended outcomes and is a form of power that is often less visible. Agency also refers to the individuals' belief in their own capability to navigate changes and influence the events that impact them, closely intertwined with the cognitive aspects of resilience and learning discussed earlier (Cinner and Barnes, 2019). Social resilience necessitates that people hold the power and autonomy to mobilize their resources, adaptability, social structures, learning abilities, and socio-cognitive capacities to shape their future (Cinner and Barnes, 2019). For instance, concerning climate change in SIDS, recent studies indicate that agency empowers individuals to anticipate and respond to changes, mitigate adverse environmental and socio-political repercussions, effectively utilize resources for adaptation measures, and capitalize on emerging opportunities (Cinner et al., 2018).

In discussions of agency and resilience, the ‘everyday’ emerges as a crucial normative level for understanding agency across various settings, particularly in island contexts (Kothari and Arnall, 2019, McMichael et al., 2019). "Everyday agency" refers to the expressions of agency in daily life, events, practices, and relationships; it embodies the routine, commonplace, familiar, and often mundane ways through which individuals and communities assert control over their lives (Jokinen, 2015). Such expressions of agency may not always manifest as decisive acts of control and self-determination but can also reflect the precarity and contingency individuals face amidst diverse and potentially destabilizing social and environmental changes (McMichael et al., 2019). This concept is termed "precarious everyday agency" by Jokinen (2015), foregrounding ways in which people adapt their everyday life and practices to overcome continuous exposure to precarity and uncertainty.

Given the need for more human-centric understanding of resilience of SES (as discussed in 2.2.1), this section has discussed a range of social domains that may build or inhibit the resilience of SES. The following section reviews ways in which the above discussed resilience theories are applied in the context of SIDS, to further justify the need to enhance understanding of SIDS-specific attributes of resilience.

2.2.3 Resilience in SIDS

This section reviews the growing body of literature that challenges the vulnerability discourse, focusing on SIDS resilience and adaptive capacities. This 'counter vulnerability' discourse, attempts to unpack the resourcefulness of SIDS to cope with the myriad of challenges they face (Armstrong and Read, 2006). In this body of literature, there is an attempt to unpack the power and agency of SIDS to recover from disruptions using their own resources, instead of accepting that their fate lies in the hands of others (Easter, 1999, Zhang et al., 2023). These discourses go on to argue that SIDS can be strong in the face of socio-economic and environmental changes (Philpot et al., 2015). For example, a recent study by Waegh et al. (2023), on social inclusion and resilience in the islands of Vanuatu, Tonga and Timor-Leste, showed that people's ability to cope, adapt and transform in the face of disturbances were dependent on their ability to exercise agency. In Timor-Leste, Waegh et al. (2023), analysed the impacts of the COVID-19 pandemic on a group of women fishers, showing how they leveraged government support and the lockdown circumstances to change their business model and cultivate independent incomes, despite the challenges. These included, changing fishing grounds or time at sea and modifying how they sold their fish (due to movement restrictions) (ibid). Such studies show how in challenging circumstances people can draw on traditional and non-traditional resources in a way that best serves them and that collective actions increase their ability to cope. This points to the role of socio-cultural and community norms in resilience building in SIDS.

Studies have also shown how strong cultural community bonds developed in islands underpin resilience (Foley et al., 2023, Donaldson, 2018). According to Movono and Becken (2017), Buckley (1968), in some small island communities in Fiji, the saying "everyone knows everyone else" is commonly used to describe their tight-knit communities and networks, reflecting their interrelated and highly connected nature

(Buckley, 1968). A study conducted by Nakamura and Kanemasu (2022) in Fiji, showed that communities shared a strong identity, underpinned by communal and culture of sharing resources. A similar study conducted by Campbell (2009) across Oceania showed the role of kinship networks in facilitating cultural collaborations, exchanges, ceremonies and consumption control between communities as a coping mechanism during adversities. Similarly, in Fiji, the cultural practice of 'solesolevaki' - translated as 'collective work for communal benefit' (Movono and Becken, 2017: 6) – ensures that islanders develop collaborative ways of operating that enable them to face and respond to challenges (Nunn and Kumar, 2017). Thus, these studies refute assumptions of islands and islanders as inherently vulnerable (Nunn and Kumar, 2019), an assumption that is often used to justify what development efforts should look like from a Western perspective (Kelman 2020). These studies show that those primarily Western viewpoints are not shared in islands, where local resourcefulness is seen as a key component of interdependence and a source of resilience (McNamara et al., 2020).

Similar studies assert that people living in small islands can be portrayed as resilient because of their high levels of social bonding and connectedness (Baldacchino, 2005). Such studies argue that social networks and self-organization reinforce each other. According to Mahon and McConney (2013), networks define the relationships among individuals, indicating how they are connected and how these connections contribute to the formal and informal institutions that shape and govern human behaviour. These connections can serve as channels for the exchange of resources, including goods, finances, information, services, social or provide emotional support, trust and influence (Bodin and Prell, 2011). Self-organization entails a reduced reliance on external inputs and is facilitated through collective actions rooted in networks (McConney et al., 2020). The structure of networks plays a significant role in determining the functionality of SES, performance, as well as social capital, power dynamics, self-organization, adaptive capacity, and other aspects of resilience (McConney et al., 2011). Yet the role of cultural and social coping strategies in islands appears contested in the literature. For example, Nunn (2007) argued that cultural coping mechanisms can easily fail under pressure, and in many places, such cultural networks have been suppressed, reconfigured or lost as a result of colonialism, development and globalization. Similarly, Baldacchino (2005) argued that

cultural features that are portrayed as typical and beneficial in island communities are not necessarily conducive to democracy and equitable governance, calling for a nuanced understanding of how islandness contributes to resilience.

The role of economic connectivity in resilience building is also contested (Pereira and Steenge, 2022). For example, Gould et al. (2018), argued that for SIDS, economic connectivity, through trade, investments, migration, modern telecommunications and transport could be an asset for building resilience. It could open up new and diverse markets for SIDS for trade and allow movement of technologies and ideas (ibid). However, they argue that the level of resilience SIDS achieve is dependent on the quality of such connections in terms of knowledge spillovers from their connected countries and the indirect connections made through those partner countries. They also argue that political dependence offers certain benefits that might increase economic resilience which may or may not reduce the economic vulnerability of SIDS. Pereira and Steenge (2022), based on assessments of Caribbean SIDS, showed that connectivity when viewed in terms of a systems approach can help understand why politically dependent countries and territories in the Caribbean may have higher economic resilience as compared to their sovereign peers – as dependency in such cases has led to better institutions, more effective governance, and economic connectivity. Similarly, Escaith (2001), states that in the context of Caribbean SIDS, connectivity could contribute to economic resilience, but that connectivity could imply a high dependence on external economic conditions, especially because often small economies rely on volatile export proceeds from a small number of products and foreign markets.

The role of governance in enhancing resilience in SIDS is also debated. Scholars such as Lowitt et al. (2015) link resilience with governance, arguing that good governance is a way of rebuilding social networks and enhancing self-organization. For example, studies in SIDS confirm the role of decentralized governance in building social capital, which is essential for empowering citizens to participate in local development (Helling et al., 2005). Saint Ville et al. (2015) and McConney et al. (2014) also contend that centralized power held by state institutions constrains innovation and local action. Such centralization weakens local actors, undermining connections between citizens and the state (Connell,

2014, Lowitt et al., 2015). Thus, decentralized governance facilitates the use of local knowledge and strengthens ties between decision-makers and vulnerable communities (Helling et al., 2005). However, based on their analyses of the Caribbean, Mohammadi et al. (2022) suggest that polycentric governance may be a more suitable mechanism to advance food security by recognizing bridging institutions and engaging various actors in supporting shared rule-making, power, conflict management, and knowledge-sharing among local, national, and regional policy actors. Similarly, in the context of climate change adaptation, Barnett (2001) alludes to the significance of polycentric institutional systems where regional and national actors could work as facilitators of local-level adaptation strategies and re-establish mutually supportive relationships and traditionally important sources of resilience.

Researchers have also explored everyday agency in SIDS as islanders experience and respond to climatic and environmental shifts, demonstrating how people adapt their everyday practices, lives, and livelihoods in response to changing environments and risks and build resilience (Kothari and Arnall, 2019, McMichael et al., 2019). In the Maldives, Kothari and Arnall (2019) found that guesthouse owners on local islands adeptly manage the persistent risks of climate change, such as coastal erosion, through small-scale interventions like using sandbags to control the movement of sand. Similarly, in Kiribati, Kuruppu (2009) documented how communities respond to water scarcity induced by climate change. Residents diversified their water sources, occasionally resorting to unconventional means such as collecting rainwater from churches or neighbours to mitigate the impact of water shortages. In a similar examination of adaptation and resilience to climate change in low-lying coastal villages in Fiji, McMichael et al. (2019) identified instances of everyday agency that involved readiness for contingencies, perseverance in the face of disruptions, including preparedness to relocate to higher ground if necessary. In the context of involuntary resettlement and migration on Gaadhoo Island in the Maldives, Azfa et al. (2020: 174) observed that islanders gradually adapt to their new surroundings over time, ‘as the disruption of their relocation gives way to the ordinariness of the everyday in which people develop skills, adjust to new pressures and create new modes of living’. These studies shows that adaptation towards everyday life holds significant value and familiarity for the islanders in building and maintaining resilience.

Despite above efforts to situate resilience through a more context-specific, socially and culturally appropriate discourse in SIDS, it is evident that development interventions continue to frame resilience as a state agenda (Krüger, 2018). In so doing, they overlook the participatory and leadership role of local communities resulting in top-down, external decision-making that is disconnected from the everyday lives, needs and concerns of island people, which can lead to maladaptation (Nunn et al., 2021). For example, people living on small atolls are often encouraged to move to larger islands where they can be 'protected'; this notion of migration as adaptation has been widely criticised as being ignorant of people's deep ties to place (Felli and Castree, 2012). Similarly, tourism in SIDS is used as a tool for poverty reduction, but neoliberal tourism policies primarily aim at market expansion and tourism revenue growth without understanding the socio-economic contexts and needs of island communities (Scheyvens and Momsen, 2008). Another example is the obscuring of Indigenous and traditional methods in disaster reduction in Euro-centric disaster management frameworks that emphasise external aid (Gaillard, 2007). Such technocratic development interventions pay insufficient attention to 'the ways in which ideas, power and resources are conceptualised, negotiated and implemented by different groups at different scales' (Tanner and Allouche, 2011: 11). Instead, they favour development interventions that are designed and measured according to Western norms and ideologies, which do not translate well to island contexts (Zhang et al., 2023).

I argue that there is a need for empirical evidence that shows how place-based norms of islandness manifest materially and discursively in varying geographical contexts, enhancing or challenging resilience efforts of SIDS. Kothari and Arnall (2019), based on their research in the Maldives, state that studying islander's everyday practices allows nuanced understanding of the human/non-human entanglements that shape resilience on islands. Similarly, Movono et al. (2023) argue that resilience in islands should be viewed as a complex, interconnected, non-linear process that places island people - and their resources, power, agency, communities and governance - at the centre of resilience discourse. This thesis aims to contribute to this growing body of literature on SIDS resilience, through the lens of food systems.

2.3 Food Systems and Food Security in SIDS

One growing body of literature within resilience discourse is its applicability to food systems (Tendall et al., 2015, Zurek et al., 2022, Béné et al., 2023). Food systems have increasingly been recognized as highly exposed to disruptions and shocks and these are projected to intensify in the future (Maye et al., 2018, Rimhanen et al., 2023). Escalating threats posed by climate change (Mbow et al., 2019) continue to expose food systems to unprecedented challenges across diverse contexts. More recently, the Russia-Ukraine war (Rimhanen et al., 2023) and the COVID-19 pandemic (Bene, 2020, Farrell et al., 2020, Laborde et al., 2020) have sparked interest among scholars to study the resilience of food systems. Furthermore, the highly multi-dimensional, complex and interconnected nature of food systems, increases their exposure to sudden disruptions (Ericksen, 2008). As a result, there is policy and scholarly interest in advancing knowledge on enhancing the resilience of food systems to better anticipate and recover from local, national and global shocks across diverse geographical contexts.

This section reviews literature on food systems and food security in the context of SIDS. It conceptualises food systems as a holistic way of understanding food security and introduces emerging literature that applies SES resilience theories to food systems. It then reviews literature on food systems in SIDS, highlighting that while resilience discourses in island contexts are now relatively well established (as discussed in section 2.2.3), there is limited scholarly consideration of how islandness characteristics contribute to resilience of food systems.

2.3.1 Food Security and Food Systems

In recent years, food systems frameworks have increasingly been used to understand food security (Zurek et al., 2022). According to the FAO, food security has four key dimensions - availability, accessibility, utilization and stability – with the more recent additions of another two dimensions - agency and sustainability (HLPE, 2020). Food security exists when:

> all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life. (FAO, 2001: 49)

This definition emphasizes the multifaceted aspects of food security, comprehensively incorporating all six dimensions. This definition is also relevant to the conceptualization of food system resilience, particularly the idea that food security cannot be achieved without stability in access to, availability, and quality of food. This stability can be linked to resilience (Bene, 2020). Figure 2.1 provides an overview of the six dimensions of food security.

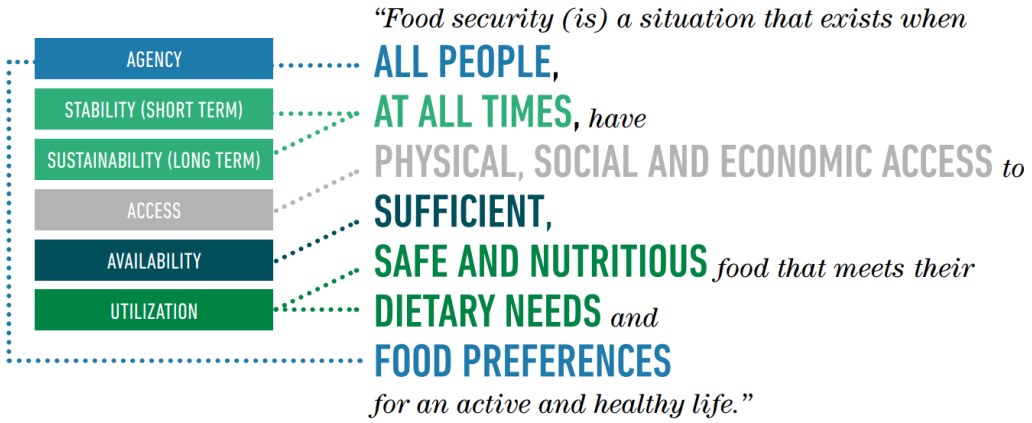

Figure 2.1: Conceptualizing food security based on its six dimensions (Source: HLPE, 2020:10)

A food system is a sum of a range of factors related to food security (Ingram, 2011, Ericksen et al., 2010, Ericksen, 2008, Fanzo et al., 2021) that include production, processing, distribution, retailing, preparation, and consumption of food. Diverse individuals engage in these activities, influenced by a variety of governance, social, policy, technological, market, cultural, environmental, and economic factors. These interactions lead to outcomes that evolve as actors adapt activities in response to changes in drivers to either capitalize on an opportunity or mitigate threats. Food systems are highly interconnected through feedback mechanisms, as any changes to a driver or outcome has repercussions across the whole system (Ericksen, 2008, Ingram, 2011). Inevitably this can result in unforeseen consequences, or trade-offs.

Food environment, food supply chains and individual factors are three critical components of a food system (See Figure 2.2).

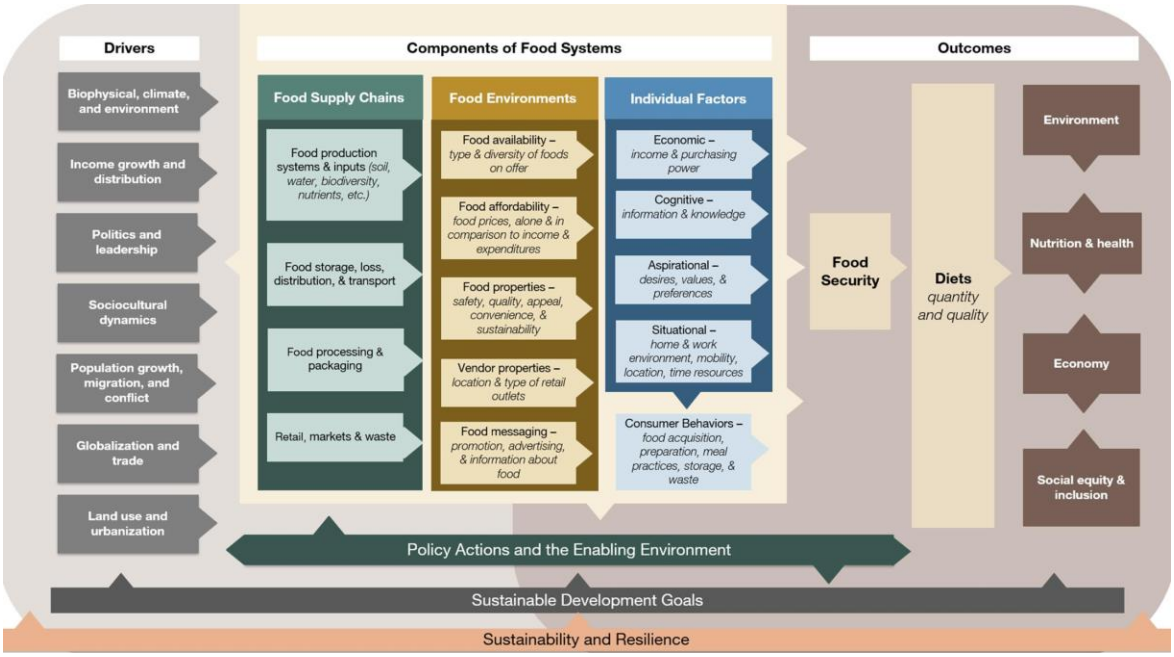

Figure 2.2: A visual representation of food system components (Source: Fanzo et al., 2021: 4)

Food supply chains (also referred to as food production and distribution networks) include a range of processes and actors, including private sector businesses, from production to trade, processing, retail marketing and consumption (HLPE, 2017). Food environments refer to the physical, economic, socio-cultural and policy conditions that shape access, affordability, safety and food preferences (HLPE, 2017), thus overlapping with food supply chains and consumer behaviours. Consumer behaviours respond to food environments and are comprised of individual awareness and decisions on where and what foods to acquire, prepare and eat (Fanzo, 2023).

Here, culture is identified as one key factor that determines the types of food people consume and their decision-making process (Ericksen, 2008, Webb et al., 2020, Fanzo et al., 2022). Food system scholarship acknowledges the existence of deep cultural roots associated with food. For example, food can be a symbol of personal identity, group affiliation and cultural identity (Bisogni et al., 2002). Food gifts and food sharing are important forms of expressing social belonging (Goody, 1982). Religious norms and beliefs also shape food environments. Scholars such as Monterrosa et al. (2020) underscore the

significance of religion in shaping dietary practices, emphasizing the role of rules, symbols, and meanings. Among the religious functions of food, the demonstration of faith through symbolic acts and rituals enhances identity and belongingness (Fieldhouse, 1995). For example, in Islam, religious festivals such as Eid and Ramadan, are occasions where shared beliefs and identities are evident in communal gatherings, with food sharing as a central focus (Kassam and Robinson, 2014).

Importantly, food systems operate over a range of spatial, temporal, and jurisdictional scales (Zurek et al., 2022), and understanding these different scales and levels is central to studying food systems (Ramalingam et al., 2008, Thompson and Scoones, 2009). For example, household food security is not influenced by factors operating at the local level, but also at district, national, and international factors, such as increasing prices of grains at global markets (Ericksen, 2008). Given the highly globalized nature of food systems and their impacts across scales, scholars argue that it is increasingly difficult to separate the global from the local (Wilhelmina et al., 2010). As perceived by Araghi (1995), global and local processes (re)constitute each other; neither globalization nor localization is a unidirectional process, instead, they unfold simultaneously, making it almost impossible to distinguish between the two. The term 'Glocal' (Gupta et al., 2007) has been employed to reflect this interconnected nature of the global and local scales. These cross-scale interactions, or ‘Glocal’ dynamics, contribute to the complexity of food systems and can pose challenges for the overall governance of the system. Thus, the highly complex, interconnected and multi-scalar dynamics of food systems underpin the notion that food systems are better understood as SES (Zurek et al., 2022, Sage, 2022, Fanzo, 2023, Allen and Prosperi, 2016).

The complex food system dynamics and its interactions across scales and feedbacks, makes them highly vulnerable to shocks and stressors (Zurek et al., 2022). Shocks are understood as abrupt events, with potential for severe impacts and often unforeseen surprises (ibid). Zurek et al. (2022) in their global analysis of a half-century of drivers of shocks for both land and marine-based food systems identified notable shocks such as extreme weather incidents, geopolitical occurrences, financial market collapses, escalating short-term costs of fertilizers and other agricultural inputs, human disease epidemics, and conflicts (Cottrell

et al., 2019). In contrast to sudden shocks, food system stressors refer to longer-term conditions (Zurek et al., 2022). Examples include, gradual shifts in land use and agrochemical usage, alterations in dietary patterns, climate change, demographic shifts, regulatory changes, trends in commodity prices, and the decline of functional biodiversity (Díaz et al., 2020). However, not all actors within a food system will encounter shocks or stressors in the same way or to the same degree—some may benefit while others may encounter difficulties (Lyon et al., 2020), conditional on the extent of their impact on the system, their implications for actors, as well as the responses of the actors (Zurek et al., 2022). In the context of food systems, sustainability and resilience are often employed interchangeably. Tendall et al. (2015) perceive resilience as an essential means to promoting sustainability, ensuring a system can continue to function overtime despite disturbances. According to Leach et al. (2010) a resilient pathway is one marked by adaptability and flexibility. Within this context, there is a small body of literature within food systems, that applies resilience theories to food systems. These are reviewed in the following section.

2.3.2 Food System Resilience

As alluded to at the beginning of section 2.3, the application of resilience to food systems is a new and emerging field, but with significant policy and scholarly interest (Tendall et al., 2015, Béné et al., 2023, Zurek et al., 2022). Scholars conceptualizing food system resilience largely draw on the foundations of SES resilience as elaborated in Section 2.2.1. They argue that the SES perspective, rooted in an appreciation of the complexity of systems, carries significant analytical potential for assessing resilience within food systems (Zurek et al., 2022), given the complex dynamics of social and ecological drivers, its feedback and interactions within food systems and their cross-scale interactions, as discussed in the above section (2.3.1). In the context of food systems, resilience is particularly concerned with the impacts of disasters and other adverse events on people's food security (Béné et al., 2023).

While the terminology may vary slightly, most definitions of food system resilience refer to the capacities of households and communities to navigate adverse events without detrimentally affecting their long-term well-being and functionality (Béné et al., 2023).

Tendall et al. (2015) lay important groundwork for understanding food system resilience by adopting a whole system perspective. Within this context, Tendall et al. (2015) define resilience of food systems as the capacity over time of a food system to provide sufficient, appropriate and accessible food to all, in the face of various and even unforeseen disturbances. They stress that resilience occurs at multiple levels of the food system, from individuals to national food systems to global webs of value chains, thus signalling that resilience requires participatory food systems (ibid). Building upon these fundamental systems thinking principles, scholars (Zurek et al., 2022, Béné et al., 2023) continue to adapt SES resilience frameworks to apply to food systems.

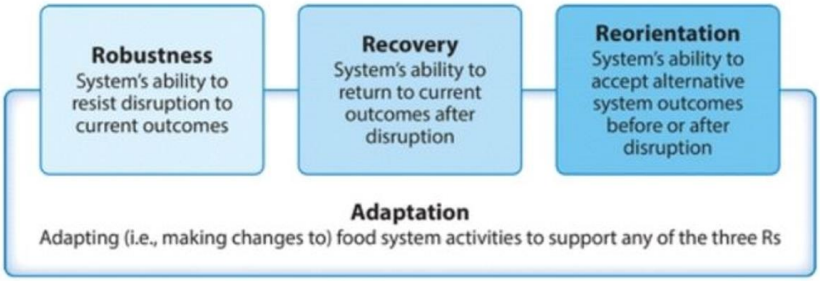

Figure 2.3: 3R Resilience framework (Zurek et al., 2022:11)

Zurek et al. (2022) introduced the 3R resilience framework (See Figure 2.3) to assess resilience of food systems. The framework is based on the robustness, recovery, and reorientation of a system. Robustness in the food system relies on the capacity of actors to adjust their actions, ensuring resistance against disruptions that may hinder desired outcomes. Examples include utilizing heat-tolerant crops, diversifying supply chains, and fortifying strategic food reserves. Recovery, hinges on the ability of food system actors to adapt and return to desired outcomes following disruptions, essentially bouncing back to the status quo. For example: supermarkets swiftly restock after an unexpected surge in demand, such as panic buying, due to strengthened resilience capacities with centralized distribution systems. Reorientation involves accepting alternative food system outcomes either before or after disruption. Reorientation strives for different outcomes, such as shifting from poor diets to healthy diets, necessitating a modification in food system

activities and the adaptation of relevant actors to a different trajectory (Tendall et al., 2015, Zurek et al., 2022).

With reference to this resilience framework, Zurek et al., (2022) demonstrate that improving resilience requires adaptation and transforming food systems require reorientation strategies more than robustness and recovery options. Such a framework involves a marriage of different disciplines (including the social sciences as discussed in section 2.2.2) and the inclusion of perspectives from a range of actors making it applicable to a wide range of contexts. However, this framework notes that desirable outcomes do not always align and that trade-offs will need to be evaluated such as balancing food prices and accessibility with, for example, environmental impacts.

Béné et al. (2023) provide a similar, but more actor-oriented, people-centred conceptualisation of food system resilience. Their framing of food system resilience is grounded in three distinct capacities: Absorptive Capacity, Adaptive Capacity, and Transformative Capacity (See Figure 2.4). Absorptive capacity involves coping strategies employed by individuals or households to moderate or buffer the impacts of shocks on their livelihoods and basic needs (e.g., the cultivation of heat-resistant crops). Adaptive capacity entails making proactive and informed choices about alternative livelihood strategies in response to changing conditions (e.g. adopting new farming techniques, diversifying livelihoods, and engaging in new social networks). Transformative capacity refers to systems-level transformative or structural changes deemed necessary for the long-term survival of the system. Building resilience necessitates interventions that strengthen all three components simultaneously and at multiple levels, including individual, household, community, national and regional (Béné et al., 2014a, Béné et al., 2012).

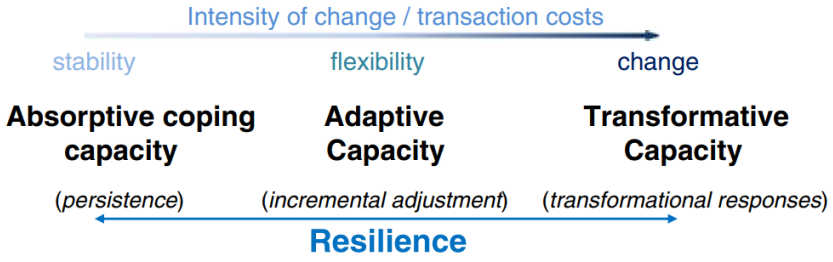

Figure 2.4: Resilience as the result of absorptive, adaptive and transformative capacities (Source: Béné et al., 2014: 601)

Based on this framing, Béné et al. (2023: 1440) adapted the definition of food system resilience to focus resilience on the capacities of food system actors; 'the ability of the different individual and institutional actors of the food system to maintain, protect, or successfully recover the key functions of that system despite the impacts of disturbances.' This interpretation of food system resilience prioritises a human-centric perspective of resilience, by emphasising actors and their agency as the entry point to understanding resilience, enacted through the three capacities outlined in Figure 2.4 and explained above. It underscores the diversity in actors involved, including individual (i.e. groups of people engaged in food system activities such as producers, processors, transporters, wholesalers, retailers and consumers) and institutional actors (i.e. local, municipal, (sub)national institutions and private organizations involved in the food system); and it highlights the need to analyse impacts of disturbances and their responses, across the diverse actors involved and their interactions across scales (i.e. local, municipal, (sub)national). Hence, Béné et al. (2023) framing of resilience is useful, as it provides an integrated, human-centric and multi-scale conceptualisation of resilience as applicable to food systems.

Although there is growing interest in exploring the resilience of food systems, this interest remains largely confined to theoretical frameworks and lacks broad applicability across diverse geographical contexts. For example, Zurek et al. (2022) noted that despite the emergence of multiple models to understand and research food systems and define food system resilience, few studies have provided context-specific case study examples. The following section explores food system studies in SIDS, to further explain the need to apply and study resilience in specific contexts.

2.3.3 Food Systems in SIDS

Food system studies show a range of ways in which SIDS are challenged, but there is limited literature on how these challenges are addressed and mediated. Some of the key challenges to food systems are due to the impacts and threats of climate change (Barnett, 2020, UNFCCC, 2007, Ding et al., 2017), high dependency on trade (Madeley, 2000, Clapp, 2014, Connell and Lowitt, 2020), increasing non-communicable diseases (NCDs) (Chase et al., 2014, Francis et al., 2010, WHO, 2012), tourism (Movono et al., 2017, Berno, 2020) and weak regulatory and governance measures (Mahon et al., 2008, Rahman et al., 2017, Connell and Lowitt, 2020).

Climate change-related environmental impacts - encompassing extreme weather events, sea level rise, stressed water resources due to shifts in rainfall patterns, intermittent droughts, and ocean acidification - pose significant threats to agriculture and fisheries, which are core components of local food systems in many SIDS (UNFCCC, 2007). Connell and Lowitt (2020) highlight that SIDS such as Tuvalu, Kiribati and Cook Islands have experienced severe droughts in recent years, which has necessitated the import of freshwater, while intense cyclones in Vanuatu, Fiji and Tonga have devasted agriculture and food systems. Similarly, a review of climate change impacts in the Pacific SIDS concluded that climate change has potentially far-reaching adverse impacts on agricultural production, the ability of countries to import food, damage to infrastructure for food distribution, and the ability for households to purchase food (Barnett, 2020). Studies on climate vulnerability in the Maldives have also illuminated local perceptions of the impacts of climate change such as storms, droughts, tidal flooding, erosion, changes in season, saltwater intrusion in gardens and water wells, on access to and quality of climate-sensitive livelihood resources such as food and water, including disparities in perceptions of risks and vulnerabilities between peripheral and core islands (McNamara et al., 2019). Similarly, Sovacool (2011), in assessing the drivers, benefits and challenges to climate change adaptation in the Maldives found that increased flooding due to sea-level rise and erosion has detrimental impacts on food security in the islands. In particular, he noted changes in temperature, precipitation and timings of severe weather events a growing threat to agricultural productivity in the islands. Further insights into local perceptions of climate change and its associated environmental and social changes were provided by Stancioff et

al. (2018), focusing on two SIDS: St. Kitts in the Caribbean and the Maldives. Their examination revealed that agricultural and fishing communities perceive negative impacts on their livelihoods. These sectors are closely intertwined with food security (ibid). A recent publication by Singh et al. (2022) provided an indicator-based assessment of food security and climate change across SAARC nations including the Maldives, using a statistical projection model. This analysis underscored the susceptibility of the Maldivian food system to the future impacts of climate change (for the year 2050), identifying Maldives and Afghanistan as the least food-secure nations among the SAARC countries under all four climate change scenarios, adopted from the IPCC (2014) assessment report. Ding et al. (2017) assessed the vulnerabilities of marine fisheries sectors in selected 109 countries, including the Maldives, focusing on the sector's ability to meet food security in the wake of devastating climate change impacts. They found the Maldives to be one of the Asian countries that was most vulnerable to climate-induced effects on marine fisheries.

Trade dependency, rising food prices, underdeveloped domestic food systems and limited local food production capacities are also widely considered to exacerbate food insecurity in SIDS (United Nations, 2011, AOSIS, 2012). According to the FAO (2019) over half of SIDS import more than 80% of their food, predominantly processed foods, wheat, corn, meat, and dairy. This heavy reliance on food imports, exposes SIDS to global food price fluctuations, as witnessed during the 2008 financial crisis (FAO, 2016). Despite the high dependency of SIDS on food imports, the impact of trade liberalization on food security remains highly debated. The prevailing narrative asserts that food security is enhanced under an open trade model (Clapp, 2014). However, critics argue that liberalization has contributed to increased food insecurity (Madeley, 2000). For example, Connell and Lowitt (2020) argue that smallholder farmers in SIDS with limited farmland compete against relatively cheap processed and fresh imports from industrial agricultural systems in countries like Australia and the USA. This is argued to result in limited investment, slow technological advancement, less diversification, and insufficient economic viability in regional and global export markets (FAO, 2016). Increased global trade has also been linked to increases in Non-Communicable Diseases (NCDs) (Chase et al., 2014, Francis et al., 2010, WHO, 2012). For example, Connell and Lowitt (2020) indicate that obesity levels in several SIDS are on the rise and that several SIDS in the Pacific are in the world's top

ten in this regard, a public health challenge that has been attributed to increasing consumption of unhealthy highly processed imported foods.

Tourism in SIDS is another factor that shapes food insecurity, particularly given its central role in SIDS economies. According to UNWTO (2023), tourism currently accounts for more than 20% of the Gross Domestic Product (GDP) in two-fifths of the SIDS (where data is available), including the Maldives. According to some scholars, tourism places demand on food consumed in islands (Gössling, 2001) and can represent a form of culinary colonialism (Koa Dunsford, 2010), with many SIDS experiencing loss of their traditional food habits as a result (Berno, 2020). Berno (2020) explains culinary colonialism as the sociocultural influences on food preferences resulting from processes such as colonisation, urbanization, migration and globalization, which contribute to shifts in cuisine and food consumption patterns. These changes pose the risk of losing unique food heritages as well as the diversity of crops that sustain them (ibid). Rapid expansion of tourism affects food production and consumption similarly, through socio-economic changes to the lifestyles of communities. For example, Movono et al. (2017) found that Fijian villages with stronger purchasing power, because of regular income from employment in tourism, had less motivation to engage in other (more traditional) forms of subsistence agriculture and food preparation. A study conducted by Berno (2015) also showed that in the South Pacific SIDS, there is heavy reliance on Western-style foods and imported food products in the tourism section, which have resulted in those islands transforming their agricultural practices so as to meet the food preferences of tourists, leading to a loss of traditional food cultures and norms (Berno, 2015). According to Connell and Lowitt (2020) this shift in food culture also transforms people's sense of identity and modernity as they become associated with foreign cuisines. For example, they have observed that in some SIDS communities, an exclusive consumption of local foods is sometimes perceived as a sign of ‘poverty’, while greater status and prestige are associated with consuming imported food (ibid).

Weak policies, regulatory measures, and governance in SIDS are another key challenge to food systems in SIDS. Good governance is argued to uphold fundamental principles such as participation, inclusiveness, accountability, transparency, and equity and also

demonstrates adaptability in its structures and processes (Mahon et al., 2008, Rahman et al., 2017). According to Connell and Lowitt (2020), developing countries including SIDS often have 'elusive' policy initiatives that do not fall under the definitions of 'good governance', with disconnects between rural or local communities and national policymakers due to issues of lack of inclusivity and broader participation in decision-making processes (Connell and Lowitt, 2020). For example, based on a study of food security challenges in Micronesia, Connell (2020) noted that policies appear in a 'token form' on paper at the directive of international agencies, with limited efforts to implement effective integrated rural and regional development policies – which leads to 'elusive policies' and often underdeveloped fisheries and agricultural sectors, that do not necessarily benefit the local. Similarly, in St Lucia, the cultural and linguistic gap between bureaucrats and farmers saw the latter viewed as illiterate, ignorant and incapable of innovation of their farming systems (Moberg, 2008). Studies also reveal that weaknesses in policies and their implementation, especially in the agriculture sector in SIDS, hinder the engagement of local actors in traditional food-producing sectors such as agriculture and fisheries in rural or outer islands, driving those communities to seek alternative livelihoods, often in the tourist sector (Connell and Lowitt, 2020, Turner et al., 2007), which limits local productivity.

The discussion above reveals ways in which SIDS food systems are challenged. But how are these challenges addressed and mediated? Although limited, a small body of literature has started to focus on the resilience of food systems in SIDS. For example, Guell et al. (2022) have conducted case studies of two islands, one in Fiji and one in St. Vincent, to understand opportunities and challenges to local-level food systems. They found that despite the challenges these islands face, they built and sustained resilience through, for example, community-led demonstration farms, Indigenous shared farming practices, and informal networking between local food producers and processors. Similarly, in her study in Malo in the Western Pacific Island of Vanuatu, Allen (2014) drew attention to the resilience of the local food system by showing how communities innovatively adapted their traditional food practices and institutions to their land use, food supply and sustainability challenges, through for example customary land tenure. Her work demonstrated that food

system resilience in SIDS settings, highlighting socio-economic, cultural, and political diversity in a local context.

Some studies on food system governance in SIDS have associated decentralized governance with enhanced adaptive capacity, arguing that hierarchical structures and governance structures developed over colonial periods (i.e. in the Caribbean SIDS) are ill-suited to effectively respond to food insecurity (Saint Ville et al., 2015). Saint Ville et al. (2020b) and McConney et al. (2014) argue that centralized governance and power structures in SIDS constrain the capacity of agricultural systems to innovate and hinder collective action at the local level. For example, Saint Ville et al. (2020b) assessed challenges facing the agriculture and food sectors in the Caribbean Community and Common Market (CARICOM) SIDS. They identified malfunctioning institutions, lack of collaboration and interdependency among them, and insufficient support for learning and enabling environments as major challenges the agriculture and food sectors. These findings underscored the necessity for more context-specific, multi-layered, and polycentric institutional frameworks to promote equitable and inclusive governance in SIDS, addressing power imbalances and facilitating a more suitable transfer of knowledge and interaction among diverse social actors (Saint Ville et al., 2020b). Similarly, Lowitt (2020), based on research conducted in four CARICOM SIDS (St. Lucia, St. Kitts-Nevis, Trinidad and Tobago and Guyana) found a lack of trust between actors and institutions in their agricultural systems hindering the potential for collective action. Similar to Saint Ville et al. (2020b) and McConney et al. (2020), she highlighted the need for more decentralized governance approaches, to foster stronger connections between actors and institutions and enhance knowledge flows to improve food security in the region.

Linked to governance and adaptive capacity, studies have also highlighted the significance of social capital and social networks that promote self-organization in enhancing food system resilience in SIDS. For example, a study conducted by McConney et al. (2020), investigating fisheries governance in Eastern Caribbean SIDS found that fishers often relied on social networks to manage their fishing operations during disruptions such as rough seas and market glitches at the individual and enterprise levels in Grenada, Saint Lucia, and Barbados. However, the study revealed that resilience at the individual and

enterprise levels did not always translate to the local or national level, leading to power imbalances where only a few benefited. Consequently, the study advocated for integrated and enabling policies that would strengthen collective actions and mutual benefits across all actors. Similarly, a study by Saint Ville et al. (2020a) assessed the role of social capital, embedded within community-based social networks in smallholder farming systems and their innovation towards enhancing food security. This research revealed that farmers utilized social networks to better connect with each other, and knowledge sourced from interpersonal networks was deemed more significant than that provided by state services. This underscores the importance of social networks and social capital in fostering innovation and resilience among farmers in SIDS.

The recent COVID-19 pandemic also sparked a rapid growth in research on the sustainability and resilience of food systems in SIDS (Farrell et al., 2020, Hickey and Unwin, 2020, Teng, 2020). The pandemic affected health, food security, and economies at all levels, prompting a re-evaluation of food system resilience and governance (Rice et al., 2020, Hickey and Unwin, 2020, Béné, 2021). Researchers argue that the impact of the pandemic was felt more severely in SIDS due to factors such as high import dependency and weak local food systems (Farrell et al., 2020, Ferguson et al., 2022). A few studies have also looked into the diverse ways in which food systems in SIDS were adapted and maintained throughout the pandemic. Blazy et al. (2021) found that in the Caribbean, the COVID-19 pandemic impacted consumer behaviour and perceptions on the importance of the agricultural sector, encouraging a reduction in food waste, consumption of more locally sourced food and cultivation of food gardens. They also found that some farmers responded to income losses by diversifying production and targeting to local markets, where export markets were closed. Similarly, Daley et al. (2022) assessed the impacts of the pandemic on the Agri-food system in the Caribbean SIDS revealing significant disruptions throughout the entire supply chain. Common challenges and shocks, such as income loss, reduced sales, and disrupted market access, affected all stakeholders, although to varying degrees based on socio-economic status. Despite these challenges, the study found instances of resilience and adaptation, with some actors leveraging innovative approaches like online marketing and new business ventures. Moreover, individuals reported adopting healthier eating habits and increasing consumption of locally sourced foods (ibid) Foley et

al. (2022) reviewed studies that have assessed COVID-related responses in Fiji, Tuvalu, Trinidad and Tobago, Mauritius, and Barbados, highlighting novel responses as well as tried and tested mechanisms. For example, in Mauritius, a new tourist visa scheme that capitalises on the rise of remote working, helped the economy recover quickly and adapt to fiscal challenges which may have otherwise hindered food security. Furthermore, in Fiji, bartering became commonplace, when people were facing significant shortages in cash-wage, due to economic shortcomings related to loss of jobs (ibid). Ferguson et al. (2022) assessed community-level impacts and adaptation during the first 5-10 months of the pandemic in Micronesia, Fiji, Palau, Papua New Guinea (PNG), Solomon Islands, Tonga and Tuvalu. The assessment revealed that food availability was constrained in PNG and Tuvalu, where 65-68% of respondents reported insufficient food during the pandemic, attributed to shortages of imported foods in local stores and disruptions to fish markets. In response to these shortages, Ferguson et al. (2022) observed that local food production and food sharing played pivotal roles, which was widespread across all the assessed SIDS. While the assessment showed a 9% increase in food sharing across the region due to heightened local production and changes in seafood markets, some SIDS, notably Fiji, Micronesia, PNG, Solomon Islands, and Tuvalu, experienced a 32% reduction in food sharing due to severe shortages and concerns regarding virus transmission (ibid).

In the Maldives, Hassan (2020) studied the ways in which food supply chains were impacted by the pandemic and argued that to build resilience there is a need to balance dependency on food imports with local production, ensure effective use of available resources, adopt sustainable policies and enhance food security at local island and national levels. Similarly, Mohamed (2020) analysed national food statistics based on four key dimensions of food security: availability, accessibility, utilization and stability. He argued that there was a need for a more holistic, multi-sectoral approach to resilience building, that required investment in growing locally and diversifying the sources of imports. Hilmy (2020) similarly recommended the development of policies to support growing local food and diversifying imports and strengthening distribution networks. Bari (2020) studied the impact of the pandemic on the agriculture sector in the Maldives, focusing specifically on food availability. He found that with people having lost their jobs and incomes, there has been a growth in local-scale farming and agriculture, to enhance food availability. Despite

this spark in interest in food system resilience and sustainability in the Maldives, these studies were based on limited data and information largely conducted at the beginning of or during the pandemic and focused on impacts. They did not address how these impacts were addressed or mediated across the different spatial and jurisdictional scales of food systems in the Maldives.

Despite attempts to study the resilience of food systems in SIDS, there remains a heavy focus on challenges and vulnerabilities, with limited knowledge of how challenges are mediated across multiple scales and dimensions of food systems. For example, many studies focus on a single dimension of the food system (e.g. food production in agriculture or fisheries) or focus attention on one level of the food system (e.g. national level). Examining challenges and responses at multiple scales is particularly significant for SIDS due to their high import dependency and often fragmented island geographies (as detailed in section 2.1). Food system scholars attest to the importance of paying attention to cross-scale interactions in food system resilience research (Ramalingam et al., 2008, Thompson and Scoones, 2009). They call for greater consideration of the connections between different levels and scales of food systems (e.g. global , national and community levels), the diversity and heterogeneity within food systems, and the diverse ways that aspects of food systems are perceived and valued by different actors (Zurek et al., 2022).

This section has demonstrated that food systems are complex, interconnected and highly exposed to shocks and stressors across multiple scales. Food systems in SIDS are particularly challenged, due to several factors such as increasing impacts of climate change, trade dependencies, inequalities, tourism as well as issues around governance. These multiple and growing threats to food security in SIDS, underscore the urgency of studying food system resilience and understanding how food system challenges are mediated and managed across multiple scales.

2.4 Conclusion

This chapter has identified three key knowledge gaps that this thesis aims to address.

First, while the existing literature on islands is increasingly challenging colonial assumptions that portray islands as ‘inherently’ vulnerable and lacking agency, in the

context of SIDS there still remains a predominant emphasis on their vulnerabilities. This overemphasis limits knowledge of the unique resourcefulness, agency, power, and adaptive capacities of SIDS in response to growing threats and uncertainties. This thesis focuses on the resilience of SIDS, through the specific case study of the Maldives, to illustrate their overlooked strengths and capabilities.

Second, while a burgeoning body of literature investigates the resilience of socio-ecological systems, there remains limited place-based, human-centric knowledge of SES resilience across diverse geographical context including SIDS. This underscores a need to better understand and develop SES resilience as a critical area of research. Therefore, this thesis examines the place-based, socio-cultural, economic and political contexts that shape everyday lives and resilience in SIDS, contributing to a deeper understanding of the social dimensions of SES resilience.

Third, while there is a growing body of literature exploring food system resilience, there remains an overwhelming focus on food system vulnerabilities in SIDS, with limited knowledge of everyday life in SIDS and their role in enhancing agency and resilience to food system shocks and disruptions across multiple scales. This oversight inhibits a thorough comprehension of how cross-scale interactions influence food system resilience, particularly in archipelagic island geographies. This thesis, therefore, focuses on elucidating how the everyday lives of islanders in SIDS foster food system resilience across various scales.

The theoretical and conceptual framework for this thesis brings together a focus on resilience of socio-ecological systems in islands, and scale through a human-centric approach. It enables consideration of the place-based, social, cultural, economic and political contexts that contribute to resilience building in islands and island life. In doing so, this thesis applies an SES framework to assessing the resilience of food systems. The SES framework offers a comprehensive approach to assessing resilience, viewing food systems from a holistic perspective and considering the diverse array of actors involved in food system activities. It recognizes that resilience operates at various levels within the food system, from individuals to national systems to global networks of chains, thus acknowledging the multidimensional and multi-scalar nature of food systems.

Furthermore, an SES resilience framework extends beyond its ecological origins by acknowledging the role of human agency in monitoring resilience and actively intervening in system dynamics. By integrating human adaptive capacity as a core component of resilience-building, this framework addresses issues of agency, power dynamics, and marginalization.

Grounded in SES resilience thinking, this thesis finds Béné et al. (2023: 1438) definition of food system resilience useful; 'the ability of different individual and institutional actors to maintain, protect, or successfully recover the key functions of the system despite disturbances'. This definition places human actors at the forefront of resilience building in food systems, highlighting the pivotal role of human agency. According to this conceptualization, enhancing resilience involves interventions that sustain the absorptive, adaptive, and transformative capacities of actors across multiple levels. In this context, food systems are perceived as complex SES, where biophysical and social elements are interconnected through feedback mechanisms, and where a diverse range of actors are involved across multiple scales and levels of the system. A food system is a sum of a range of factors related to food security (Ingram, 2011, Ericksen et al., 2010, Ericksen, 2008, Fanzo et al., 2021) that include production, processing, distribution, retailing, preparation, and consumption of food. Therefore, a food system resilience framework grounded in SES thinking helps to capture the complexity of food systems, capturing the interplay of social, economic, and biophysical processes and actors across diverse geographical contexts, including islands.

Nonetheless, resilience frameworks grounded in systems thinking have the potential to reproduce critiques of SES resilience (as detailed in section 2.2.1), such as oversimplification of social relations and dynamics of resilience (such as power, governance, politics, agency). Zurek et al. (2022) advise caution when applying SES resilience framework to food systems, calling for careful consideration of power imbalances between different food system actors, trade-offs, and diverse scales. Zurek et al. (2022) also assert that while an SES framework is generally applicable to food systems, context-specific realities of different geographical places shape food processes, interconnections and relationships. As Adger et al. (2009: 350) contend, the role of place

in shaping adaptation and resilience processes matters, stating that 'locality, place and cultural icons are likely to loom large in the adaptation process'. Hence, I argue that the SES resilience framework needs to be considered alongside theories of islandness (Baldacchino, 2008, Hayward, 2012, Pugh, 2016, Stratford, 2008). The spatial and cultural geographies of islands provide specific contexts for understanding resilience and food system challenges (Movono et al., 2023). Here, islands are viewed as connected, complex adaptive systems (Holling, 2001); island resilience depends on how people pivot and adapt and how connected island systems engage with wider systems.

In this thesis, I adapt and apply the SES resilience framework to food systems in SIDS. To ensure more thorough and precise depictions of specific spatial and socio-cultural norms that shape life in islands, this thesis also considers theories of islandness, situating island people and their resources and adaptive capacities at the heart of resilience. In conclusion, theoretically grounding this thesis in the context of SES resilience and notions of islandness bring to the fore place-based socio-cultural, political, historical and economic contexts and shows how these can contribute to shaping the agency and resilience of islanders in times of adversities to their food systems.

CHAPTER 3
RESEARCH APPROACH AND METHODS

This chapter outlines the research approach and the methods used to collect and analyse the data. Section 3.1 introduces the ontological and epistemological standpoints of this research and is followed by a section (3.2) that justifies the use of a case study research design. Section 3.3 explains the criteria applied to select the two case study islands and an overview of each of these islands. The subsequent section (3.4) describes the qualitative data collection methods, particularly the use of semi-structured interviews and participant observation and the participant recruitment processes. Section 3.5 discusses the key considerations related to research ethics, data management and analysis of data. The final section (3.6) reflects on the research process, including my positionality as a researcher and acknowledging some of the methodological limitations of the study.

3.1 Philosophical Context

As outlined in Chapter 2, this thesis is grounded in theories of socio-ecological systems (SES) resilience and islandness. SES resilience bridges various disciplines, including the social sciences, recognizing the role of human agents in monitoring and adjusting system attributes to anticipate and respond to disruptions (Folke and Gunderson, 2010, Walker et al., 2004). Chapter 2, in particular, noted the need for a human-centred understanding of adaptation and resilience of SES such as food systems, to contribute to the development of resilience as a more rigorous and critical area of social research approaches (Mikulewicz, 2019). Resilience is also context-specific and influenced by the unique characteristics of each locality, including cultural icons and traditions (Adger et al., 2009). Hence, this thesis takes a human-centric approach to studying resilience, that is grounded in people's perceptions, lived experiences and their everyday practices. Similar approaches have been justified by island scholars as a way of gaining nuanced understandings of the human/non-human entanglements that shape resilience in unique ways in islands (Kothari and Arnall, 2019).

In this thesis, perspectives and agency of islanders are viewed as an entry point to studying food system resilience. Food systems are highly multi-dimensional and multi-scalar, shaped by a myriad of interactions among diverse actors and processes. A dynamic, holistic, and human-centred conceptualization of food system resilience sees relationality as constitutive of social reality. Within this framework, social reality emerges through the interactions between actors and is produced by engaged subjects operating within structures that partially influence their interactions (Patomäki and Colin, 2000, Wight, 1999).

Epistemologically, this thesis is grounded in the social constructionist paradigm. Social constructionism aims to illuminate the subjective understanding of seemingly objective aspects of the living world (Andrews, 2012). Rooted in historical interactions among individuals, social constructionism asserts that people's perspectives are deeply embedded in cultural and historical contexts, shaped by socio-economic dynamics (Gergen, 2015, Burr, 2003). Within this understanding, knowledge is constructed through daily interactions among people in their social lives, using language and activities in routines as channels for shared understandings. Human behaviour, according to this perspective, largely emerges through social negotiation, aligning behaviours with collective understandings (Gergen, 2015). In food system resilience studies, social settings and interactions play a pivotal role in influencing decisions about food (Halkier, 2010), and a social constructionist perspective encourages an approach that investigates the constitution and meaning of food systems in everyday life.

In fact, the everyday occupies a central role in human existence and shapes our understanding of ourselves and our place in the world (Pink, 2012). Rooted in sociology and gaining interdisciplinary traction, the study of everyday life emphasizes the mundane and routines that shape social relations and practices (Neal and Murji, 2015). It values the ordinary as an analytical category, revealing that everyday life is dynamic, filled with surprises, enchantment, contradictions, and transformative potentials (Neal and Murji, 2015, Pink, 2012, Maniates, 2012). Hence, examining the ordinary involves delving into seemingly unremarkable routines that shape interactions with others, objects, environments, and contexts. This aligns with the objectives of this thesis, which seeks to

understand the complexity of food systems and in particular how people create and interact with food systems on an everyday basis. The study explores these dynamics through routines, habits, unspoken sensitivities, and daily life in the islands. In this way, the research illuminates the sometimes-subtle adaptation strategies that islanders employ in the context of disruptions to their food system as part of their routine existence.

The theoretical orientation also aligns with interpretivism, asserting that delving into human experiences necessitates navigating the space of subjective meaning-making and understanding (Bevir and Blakely, 2018). Interpretive researchers focus on articulating nuanced human understandings and experiences, prioritizing interpretation over universal truths (ibid). This thesis embraces interpretive principles, constructing research questions centred on participants' unique descriptions and understandings, selecting methodologies that prioritize both participant and researcher insights, and presenting findings that illuminate a spectrum of shared practices and diverse experiences. The inherent subjectivity of such research is acknowledged, providing insights that are grounded in participants' experiences and narratives rather than attempting to uncover external, objective truths.

Therefore, the methodology employed in this thesis is based on the above ontological and epistemological stances: a case study approach employing qualitative data collection through a range of semi-structured interviews and participant observations. These methodological approaches enable the investigation of the complexities of islander food systems, and their resilience to food system disruptions through a human-centric approach, by illuminating people's perceptions and lived experiences and by examining the routine, habitual, and unspoken aspects of everyday life in the islands.

3.2 Case Study

As outlined in Chapter 2, food systems are highly complex, interconnected SESs that involve a range of actors and processes. To comprehensively explore the dynamics of such a complex and interconnected SES system, a case study method within a specific place context was considered the most suitable method to address the overarching research objective: to examine the opportunities and challenges to achieving a resilient food system in SIDS. This approach allows for a thorough understanding of the context, encompassing

norms, cultural practices, and everyday behaviours across multiple scales of a complex socio-ecological system. As Yin suggests, a case study allows the study of a ‘phenomenon within its real-life context, especially when the boundaries between the phenomenon and context are not clearly evident’ (Yin, 2008: 18). Mason also notes that ‘a carefully selected case study brings the strategic significance of context and of the particular’ (Mason, 2002: 1). A case study approach also offers the advantage of incorporating multiple sources of evidence and data collection methods (Johansson, 2003). This allows for an in-depth exploration of the unique intricacies and complexities inherent in the Maldivian food systems, prioritizing detailed understanding and focusing on the 'particularity and complexity of a single case' over comparative methods (Stake, 1995: 11). According to Johansson (2003), case studies are suitable for research involving complex systems of involving independent variables, their connections, and their relationships with various dependent variables. Furthermore, the exploratory nature of the research questions align well with a case study methodology.

Some researchers have argued that the case study method comes with a potential trade-off - limited generalizability (Denscombe, 2010) - when the findings are specific to the case and lack universal applicability. However, the case-specific nature of this thesis need not damage its credibility. As Yin (2008) suggests, case studies can be generalized to theoretical propositions if not to populations. Similarly, Gillham (2010) argues that while data might pertain to a specific place, the derived theory (rooted in what you find) could be relevant to others that share similarities in context. Thus, in the context of this ‘analytic generalisability’, the findings of this thesis can be applicable to other SIDS that share similarities in geographies and socio-economic contexts. The attributes of resilience that come out through the specific case study of the Maldives could also be extrapolated to broader theoretical understandings of SES resilience specific to island contexts, however with the caveat that the unique socio-political history of Maldives makes it a distinctive and compelling case study. Such context-dependent learnings, through case study research, has indeed been acknowledged as a great starting point to develop ideas in a more valuable manner, than a ‘vain search for predictive theories and universals for the social sphere’ (Flyvbjerg, 2006: 224).

This research thus focuses on the Maldives, examining the intricacies of the resilience of islanders to food system disruptions on two islands: Felidhoo and Magoodhoo. The decision to focus on the Maldives stems from its distinctive historical, geographical, socio-economic, political, and cultural context (outlined in Chapter 4), which provides a compelling lens through which to study food systems in the SIDS context. Its colonial history, homogenous religious identity, and proximity to India, a major food-producing hub have collectively fostered a degree of resilience that is less commonly seen in other island nations. The combination of these distinctive features offers new insights into how local attributes, specific to each SIDS can shape discourses of vulnerability and resilience. Chapter 4 outlines both similarities and unique attributes of the Maldives to other SIDS.

3.3 Case Study Islands

Two islands were chosen as case studies: Felidhoo and Magoodhoo. The selection criteria for these case study islands were formulated, focusing on several key factors such as land area, population size, local food production contexts, and their proximity and connection to food markets. This set of criteria is outlined in Table 3.1. These criteria were established to ensure exploration of somewhat representative Maldivian islands, distinct from islands with exceptional characteristics such as heavy reliance on agriculture, fishing, or urban development. Through desk reviews of existing reports and on-site scoping visits to potential islands, preliminary insights into various islands were gained. This approach facilitated the careful selection of case study islands that closely aligned with the research objectives and allowed for targeted and relevant investigation into the food system of the Maldives.

Table 3.1 Criteria used to select case study islands (Figures based on the statistics provided by NBS 2023)

Indicators	Criteria applied	Felidhoo Island	Magoodhoo Island
Land size (hectares)	***Small to average land size*** The average size of islands in the Maldives is 75 hectares. Only a few islands exceed 100 hectares, with the majority being smaller than 75 hectares.	14.2 hectares	24.37 hectares
Population size	***Small to average population size***	679	922

	Average population for Maldives islands is 1,131 (excluding Greater Malé as an anomaly). Most islands have a population of 500-999 people.		
Local food production through agriculture and fisheries	***Average or less than average contribution of fisheries and/or agriculture to the economy. No over dependency on any one sector.*** Only a few islands are considered dependent on agriculture or fisheries. No specific island-wise data is available; statistics are aggregated by atoll.	Areas of employment include a mix of local government administration, fisheries and tourism.	Areas of employment include a mix of agriculture, fisheries and tourism.
Presence of tourist facilities (i.e. guesthouses and resorts in the same atoll)	***Average or close to average presence of guesthouses and nearby resorts.*** Most islands have guesthouses (around 5 per island on average), although those atolls that are more tourism focused skew this figure. Resorts are unevenly distributed, with Malé Atoll being an exception with 55 resorts. On average, there are 6 resorts per atoll.	Six guesthouses operational in 2022, with two near complete Four resorts in the atoll	Three guesthouses operational in 2022 One resort in the atoll, and nine in the adjacent atoll which is a short distance from Magoodhoo Island
Proximity to major market (Malé) (km)	***Close to average distance from Malé*** Average distance of islands to Malé is 213 km	77.9 km	135.9 km

3.3.1 Felidhoo Island

Felidhoo Island, situated 78 km from Malé, is the administrative capital of Vaavu (V) Atoll (See Figure 3.1). Felidhoo is a small island with a land size of 14.2 hectares and a population of 679 residents as of 2021 (374 men and 305 women) (Felidhoo Council, 2021). Similar to all other islands in the Maldives, Felidhoo Island is governed by an island council, consisting of five council members. The island council is overseen by an Atoll Council, whose members also reside in Felidhoo Island. The majority of the island's residents are employed in the administrative sector, because Felidhoo Island is also the

atoll capital. Fishing and tourism are the main sources of income on the island. As of 2021, Felidhoo had six tourist guesthouses, with two more planned to begin operations in 2022. The island is home to around six to seven shops catering to the needs of residents and tourists, selling imported goods, including food. Grouper fishing is practiced; however, the island's fishing activities are limited by factors such as the availability of fishing grounds, fishing technology, and access to markets for selling fish produce. Due to limited availability of land for agriculture, locally produced food is minimal. However, backyard farming is practiced in most houses. Felidhoo, thus, relies heavily on imported food items to meet the dietary needs of its residents. The island is also facing challenges due to environmental changes, such as severe coastal erosion, evident along its beach areas. Given this context, Felidhoo Island serves as an example of a small, peripheral island, with very limited own productivity with potential limitations and constraints to attain food security, based on its geographical and economic context.

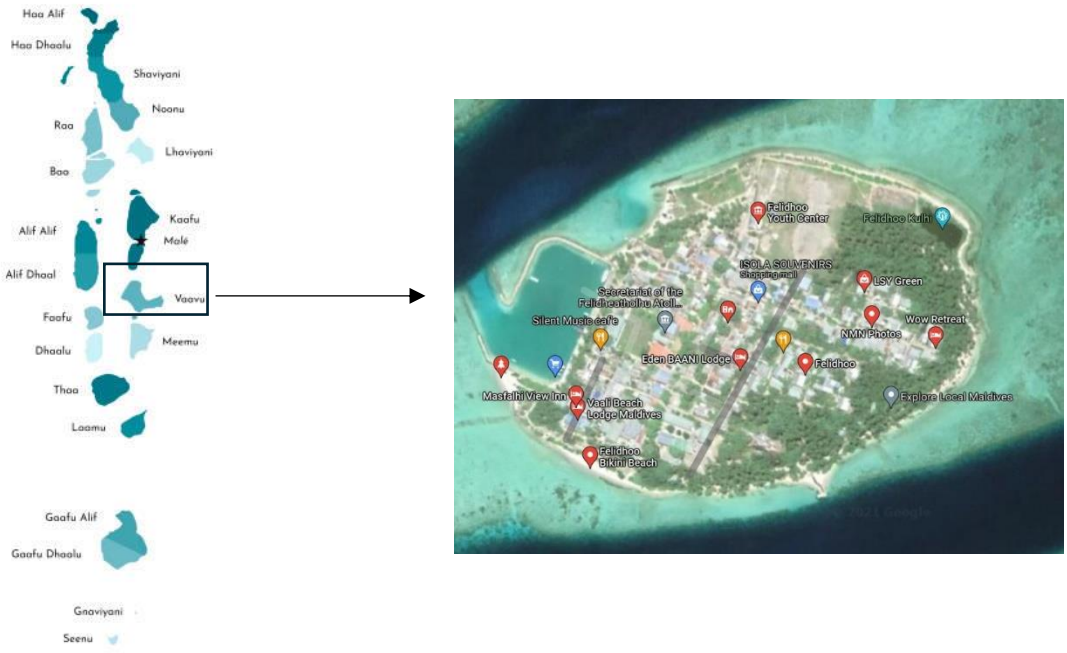

Figure 3.1 Location of Felidhoo Island and an aerial view (Google Maps 2022)

3.3.2 Magoodhoo Island

Magoodhoo Island, situated in Faafu (F) atoll (See Figure 3.2) is 130 km away from Malé, has a land size of approximately 24.37 hectares. It has a population of 922 residents (448 women and 474 men) (Magoodhoo Council, 2021), which is close to the average island population in the Maldives, excluding the capital city of Malé. Given the availability of some fertile land and the presence of a cooperative society, agricultural production is higher on average than in Felidhoo Island. The cooperative society was established in 2008, as part of a nationwide initiative, which prompted interested islands to take leadership in establishing a community owned cooperation in their islands to enhance farming and agricultural production. The island is renowned for growing bananas, locally known as *Fai Keyo*. However, agriculture do not contribute hugely to the overall economy of the island, where fishing and tourism are the other main contributors. The island currently has three tuna fishing boats and three registered guesthouses. It is also surrounded by several resorts, providing a market for their agricultural produce. There are currently eight shops that sell imported goods, including food, and four restaurants or cafés that serve food. Administratively, the island is governed by an island council, consisting of five members, which is overseen by the Faafu Atoll Council based in the atoll capital, Nilandhoo island. Thus, Magoodhoo Island was selected as an example of an island that has a close to average land and population size, with some level of engagement with agriculture and thus potentially less challenged in sustaining food security.

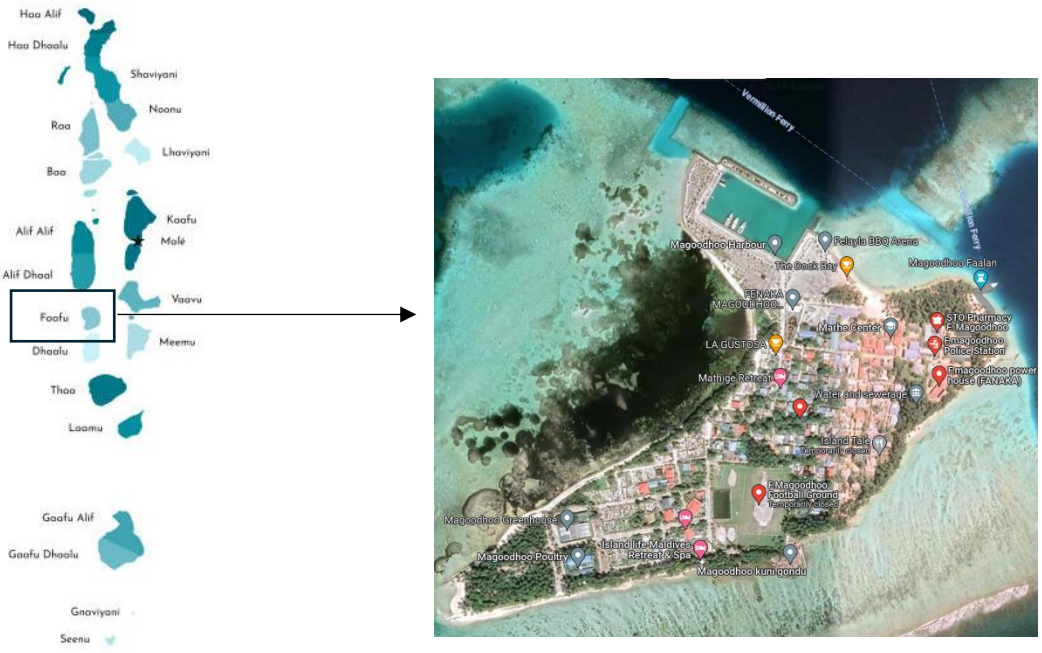

Figure 3.2 Location of Magoodhoo Island and an aerial view (Google Maps 2022)

3.4 Data Collection

As explained in section 3.1, this research adopts a range of qualitative methods to uncover the complex dynamics of islander food systems and to gain an understanding of the everyday routine and habitual practices related to food security. Studying the everyday can present challenges (Kothari and Arnall, 2019). For example, Brinkman (2012: 17) suggests that 'the difficulties of pinpointing everyday life are probably related to the fact that everyday life is our paramount reality.' Therefore, discovering the seemingly mundane necessitates an ethnographic sensibility and engagement with lives unfolding in real time (Kothari and Arnall, 2019).

This study draws on research on the everyday that has been employed across a range of disciplines including anthropology, sociology, and human geography. According to Kothari and Arnall (2019), interdisciplinary inquiry into everyday life surpasses the often-superficial nature of participatory research commonly found in development policy studies. It provides a deeper understanding of day-to-day existence, revealing and animating mundane spaces of the islands through an interpretive strategy (Vannini and Taggart, 2012).

Additionally, insights into the routine performances, everyday practices, and the embedded nature of the food system on the islands are drawn from culturally-oriented food system research (Example: Halkier, 2010). This thesis employs a combination of semi-structured interviews and participant observations as the primary forms of data collection. This qualitative approach involves immersive experiences such as walking and chatting, observing, engaging, and identifying the various ways in which people interact with their food systems on a day-to-day basis.

Data collection took place between October 2021 and July 2022. The process involved three visits to each of the two case study islands. These visits included a sequence of activities, beginning with a preliminary brief visit, followed by a four-week period of field-based research, and concluding with a subsequent follow-up visit. This phased approach allowed for immersion into the islands' dynamics, affording a deeper understanding of how individuals engage with their food systems in their daily routines and activities.

3.4.1 Semi-Structured Interviews

A total of 139 interviews were conducted: 54 in Magoodhoo and 57 in Felidhoo Island. These included interviews with the local island and atoll councils, Women's Development Cooperations, fisherfolk, farmers, local shop keepers and owners, supply boat captains and crew, health officers and guesthouse and restaurant owners. Together, these provided insights from a diverse range of men and women across different ages and occupations. Table 3.2 and Table 3.1 provide a summary of the different types of stakeholders interviewed in Felidhoo and Magoodhoo Islands, respectively. While efforts were made to categorize interviewees by stakeholder type or occupation, this was challenging due to the interconnected nature of life on small islands such as Felidhoo and Magoodhoo. Many individuals hold multiple roles and identities (e.g., a subsistence farmer may also run a shop), reflecting the specific ways of living and working in small island communities.

Additionally, 28 interviews were conducted with relevant officials in government agencies, civil society members, food traders, and staff members of development agencies situated outside of the case study islands, to gather information on the cross-scale linkages between local island and (inter)national food processes and to gain insight into current food policies and governance in the country. Figure 3.3 outlines the range of people that were

interviewed (Appendix 1 includes a detailed list of all interviews conducted). Participants were recruited using a combination of purposive and snowball sampling techniques.

Interviews in Case Study Island	Interviews outside of the case study islands (Relevant Government, development and civil society actors)
• Island and Atoll Councils • Women's Development Cooperation • Island shop keepers and owners • Supply boat operators • Fisherfolks • Farmers • Island development/cooperative societies • Health officials • Guesthouse owners/workers • Restaurant owners/workers • Elders and historians • Men and women from different demographic groups and occupations	• Ministry of Fisheries, Marine Resources and Agriculture • Maldives Food and Drug Authority • Health Protection Agency • State Trading Organization (STO) • Maldives Ports Limited (MPL) • Maldives Customs Services • Ministry of Economic Development • Agronational Cooperation • Ministry of Environment, Climate Change and Technology • National Disaster Management Authorty (NDMA) • UN Development Agency • Relevant Local NGOs • National Food Traders

Figure 3.3 Actors interviewed

Table 3.2 Summary of interviews conducted in Felidhoo Island

Stakeholder Type	***Total interviewed***	***Male (M)***	***Female (F)***
Primary producers (farmers/fisherfolks)	3	2	1
Business owners (shop owners, vendors, shopkeepers, restaurant owners, guesthouse owners, boat captains)	6	5	1
Local council and Women's Development Committee members	8	2	6
Key social, historical and cultural figures (i.e. health officers, elders)	4	4	0
All others/Residents (men and women living on the islands, from different demographic groups/occupation with no direct professional association)	36	11	25
	57	**24**	**33**

Table 3.3 Summary of interviews conducted in Magoodhoo Island

Stakeholder Type	*Total interviewed*	*Male (M)*	*Female (F)*
Primary producers (farmers/fisherfolks)	12	4	8
Business owners (shop owners, vendors, shopkeepers, restaurant owners, guesthouse owners, boat captains)	9	7	2
Local council and Women's Development Committee members	6	2	4
Key social, historical and cultural figures (i.e. health officers, elders)	4	3	1
All others/Residents (men and women living on the islands, from different demographic groups/occupation with no direct professional association)	23	5	18
	54	**21**	**33**

Drawing from my personal experiences living in the Maldives and my professional background in the environment and development sector within the country, I leveraged my existing connections and insights to identify key stakeholders for interviews. This involved reaching out to relevant government officials, development organizations, and representatives from civil society who were actively involved in the field of food security in the Maldives. As the purpose of these interviews was to get an in-depth understanding of the overall organization of the food system in the Maldives, purposive sampling was applicable as it allowed the selection of individuals or groups that were especially knowledgeable and experienced in the field of research (Creswell and Clark, 2011). As Patton (2002) states, purposive sampling maximises the efficiency and validity of research, by facilitating the selection of the most information rich cases to interview, that meet the specific objectives of the research. Recommendations from these initial interviewees through purposive sampling then contributed towards expanding the pool of potential further interviewees, which is referred to as snowball sampling (Noy, 2008).

Similarly, in the case study islands, I used my pre-existing connections with some residents in these islands as a starting point to recruit and identify relevant actors to interview. Before my initial travel to each island, I reached out to these existing contacts who helped me arrange meetings with local councils and other relevant food system actors in the islands. The local councils also proved instrumental in assisting me further by identifying individuals and groups with expertise in food systems and security issues on the islands.

They facilitated introductions to various stakeholders, including island elders, food vendors, fisherfolk, and farmers. While these specific groups were identified as important actors in the island food system, the interviews also extended to a range of individuals including men, women, people of differing ages including both the elderly and the young, and people with different occupational backgrounds including (but not limited to) school-teachers, domestic workers, and civil service personnel. These diverse residents of Felidhoo and Magoodhoo Islands were able to contribute insights into the food security landscape in their island and enable a deeper understanding of the experiences of diverse individuals and households.

Interviews were conducted in Dhivehi (native language of the Maldives). With participants' consent, the interviews were recorded for later transcription. Question guides were developed (see Appendix 2) and adapted to suit the participants' backgrounds and roles, recognizing that conversations with government officials in Malé would differ from those with, for example, farmers or fisherfolk on local islands.

While interviews with government agencies and actors outside of the case study islands were conducted in person or via Zoom, interviews within the case study islands took place in various forms and settings. For instance, interactions with local councils occurred in their respective offices during official working hours, while other interviews were arranged at a time and place most convenient to participants. Some interviews took place outdoors while seated on *joalis* (hand-woven coir rope benches) outside homes, where mostly women gathered while engaging in their daily activities such as extracting sea-almonds (*madhu felhun*) or weaving thatch (*fanvinun*) (see Figure 3.4 and Figure 3.5).. Additionally, interviews were held in *holhuashi*, an area by the beach demarcated by the trunks of coconut palm trees, where men often congregate towards the end of the day for casual conversations and friendship.

Figure 3.4 *Joali* conversations with participants

Figure 3.5 A woman extracting sea-almonds

Each interview commenced with a brief introduction to the research project. Interviews began by gathering the personal background and history of the participants, providing context to their daily lives and circumstances. The formal interview typically lasted around 30 to 40 minutes, although conversations were often extended depending on the interests of the participant. Many interviews took place in participants' homes, often evolving into more informal discussions accompanied by tea, coffee, and local snacks (*hedhikaa*). These

settings yielded rich insights into participants' perceptions and experiences related to food. For example, during some interviews with women residents, I aimed to uncover food consumption and provisioning stories that shed light on their household routines, their relationships with food items, and their roles as food providers within the household. This was achieved through prompts such as ‘What are your favourite foods to make?’ The interviews also explored cultural practices and rituals surrounding food, emotions tied to lifestyle changes, and strategies for managing food for different family members. In some instances, interviews were conducted in group settings. A conversation with six women who were collectively preparing food for a communal gathering in Magoodhoo Island, for example, proved particularly insightful as it provided a relaxed and engaging atmosphere, fostering lively discussions (Kruger, 2002). Similarly, in Felidhoo Island, group conversations over a coffee proved useful for engaging with younger people who were initially reserved when individually approached. The semi-structured and immersive nature of the interviews allowed participants to express their thoughts in their own words and guide the direction of the conversations. This approach also facilitated deeper insights through follow-up questions that sought clarification, elaboration, or exploration of specific topics.

3.4.2 Participant Observation

In addition to conducting interviews, participant observation played a pivotal role in capturing the intricate interplay between people's daily lives and their interactions with their food systems. A method known as the 'go-along' technique (Kusenbach, 2003) was employed, where I moved alongside participants as they carried out their daily activities while observing and engaging in conversations. These ‘go along’ interviews variously involved accompanying people during their grocery shopping trips, spending time in local shops, participation in food preparation, and shared meals (See Figure 3.6 and Figure 3.7). Details were noted such as food purchasing practices, food preparation, cooking methods, and food types served; close attention was paid to actions, expressions, and gestures. Discussions during ‘go along’ interviews revolved around cultural significance of food-related activities, and experiences within their food systems. This approach facilitated increased participant involvement, by breaking down the more generalised understandings of agency and resilience, by unveiling the mundane and routine aspects of life, allowing

the documentation of what islanders actually do as opposed to what they say they do (Vannini and Taggart, 2012). Additionally, I observed weekly supply boat arrivals, daily ferry operations, and fisherfolk preparing for fishing trips and returning to sell their catch by the harbour and the bustling scenes of local food vendors transporting supplies to their shops using three-wheeled carts (wheelbarrows).

Figure 3.6 Observing a local shop

Figure 3.7 Preparing Friday lunch with a local family

These observations, opinions, and reflections were recorded in a field diary to complement the interview data. Photographic documentation of these interactions and spaces further enriched the study by offering visual representations to accompany interview and observation notes. The application of participant observation techniques facilitated a more in-depth comprehension of individuals' interpersonal interactions, socio-cultural dynamics, customary practices, daily routines, and their engagement with their physical environment (Guest et al., 2017, Orlove, 2005).

3.5 Ethics, Data Management and Analysis

This research project received human research ethics approval (see Appendix 3). As part of the ethics application process, plain language statements (PLS) for the interviews, a verbal consent script, and recruitment documents were developed and approved (see Appendix 4). The PLS documents were translated into Dhivehi so that they were accessible to all participating groups. The interviews were recorded using a digital voice recorder and at times using my phone. These recordings were securely transferred to the cloud

storage/drive and stored in a secure location; password protected and, in a device, only accessible to me.

In the storage and management of the data, strict adherence to ethical guidelines was followed to ensure the anonymity and confidentiality of the respondents. Measures were taken to protect the privacy of the participants and their personal information. No personal data, such as names and home addresses, was used during the analysis and write-up to maintain confidentiality. Maintaining anonymity of places in island studies is a debated topic, recognizing that small islands are socially and physically bounded communities which makes the voices and accounts of residents recognisable even when 'anonymised' (Matheson et al., 2020). However, given the nature of this thesis, noting that it is not a particularly culturally or politically sensitive topic, the decision was made to use the real names of the islands while using pseudonyms for participants, ensuring their individual identities were protected. During the fieldwork, participants were informed about the research purpose and their role as participants. The study's objectives, the nature of the interviews, and the potential outcomes were explained to the respondents. Prior to conducting interviews, the PLS were reviewed with participants, and verbal consent was obtained before the interviews took place and they were fully informed about the utilization of the collected information in the analysis and write up of the thesis. Participants were given the opportunity to decline, stop or leave the interviews at any time.

During the interview process, I used a combination of audio-recording and note-taking. At the end of each interview, I also spend some time reflecting on what was said, summarising the key messages. This allowed me to recall nuanced details shared by participants, uncover emerging themes, and when necessary, refine my interview techniques for subsequent interviews. Following each field visit, I created narrative ethnographic summaries to synthesize the data obtained. This allowed me to identify gaps and areas for follow-up discussions. As data collection progressed, I transcribed audio recordings, often requiring translation from Dhivehi to English. Transcription and listening to the audio files allowed me to reacquaint myself with the data, enabling the preliminary identification of patterns and prominent themes. Observation notes and photographs, capturing the interview settings and interactions, were systematically stored in digital formats.

Data analysis was an ongoing process of identifying emerging themes and ideas relevant to the key objectives of this study. As explained by Sumathi and Sivandam (2006: 187), data analysis in qualitative research means a search for patterns in data, usually through a form of 'thematic coding' (Gibson and Brown, 2009). Thematic coding involves ' assigning of interpretative tags to the text based on themes relevant to the research' (Cope, 2010: 440). In this study, the thematic coding approach used involved an inductive process whereby data gathered through interviews and field observations was analysed and patterns, themes, and categories that emerged throughout the research process identified. Thus, rather than relying on pre-existing assumptions, theories and frameworks this approach enabled new and previously unknown perspectives to emerge.

Inductive coding grounds codes strictly within the data, without fitting them into a pre-existing framework, unlike the deductive approach, where researchers apply data to a predefined analysis (Nowell et al., 2017, Kuczynski and Daly, 2003). This inductive approach aligned with the interpretivist orientation of this research, as discussed in Section 3.1, which aims to provide insights rooted in participants' lived experiences and narratives, rather than seeking to uncover external, objective truths. By avoiding the imposition of a rigid theoretical framework from the outset, inductive coding helps minimize bias (Thomas, 2003), allowing for a more authentic representation of the studied culture and social group. Moreover, inductive coding allows themes and ideas to emerge organically (Nowell et al., 2017), reflecting the true lived experiences of communities. At the same time, it enables the identification of themes and categories that are most relevant to the research objectives and questions (Thomas, 2003), providing a nuanced understanding of the everyday life and lived experiences of islanders.

During this iterative inductive process of coding, I began by reading and familiarising myself with the transcripts to identify key ideas and themes that were emerging in relation to each research question. Once the key themes relevant to each research question emerging from each of the transcripts were identified, I looked for patterns in these themes across the different transcripts looking for similarities and grouping those emerging ideas and themes together to form answers for each question. This process also involved identifying quotes from the interviews relevant to the key themes. A mind-mapping exercise (see

Appendix 5) further illuminated the connections between different themes and helped in synthesizing the information and structuring the thesis.

The emerging themes and ideas were sense-checked and verified with participants during the third and final field visit to each island, as outlined in Section 3.4. During this visit, I conducted follow-up interviews and conversations with key stakeholders on each island, sharing and discussing the emerging themes related to each research question to ensure that my interpretations accurately and fully represented the viewpoints and perceptions of the community and clarify any inconsistencies and contradictions in the data. As Nowell et al. (2017) highlight, participant debriefing and verifying emerging findings with them enhances the credibility and rigor of the research process.

The data was triangulated to ensure validity and credibility and mitigate any potential biases (Nowell et al., 2017). According to Donkoh and Mensah (2023), data triangulation in qualitative research can be achieved through multiple methods, including triangulation across people, time, and space—observing and interviewing various groups at different times and locations to gather consistent information. As detailed in Section 3.4, while participant observation and interviews served as primary data collection methods, a diverse range of participants as detailed in Figure 3.3 were interviewed across three field visits to each island, over a period of nine months. These stakeholders were also interviewed about everyday disruptions to the food system as well as the specific case of the COVID-19 pandemic. Additionally focusing on two islands rather than one, further strengthens the validity of the data, allowing for robust interpretations through comparison of viewpoints and cross-checking of information. Furthermore, as outlined in this section and in Section 3.4, I maintained detailed field notes throughout the research process. These notes included non-verbal cues such as participant reactions, gestures, and group behaviours, providing valuable context for each interaction. I also created narrative ethnographic summaries after each visit based on these field notes. As Donkoh and Mensah (2023) note, writing field notes before or after interviews and observations serves as an additional triangulation method, supporting data consistency and credibility. As detailed in Chapter 4, I also reviewed relevant documentation, including historical records and books, local island council reports and relevant government policies, particularly those related to the context

of the COVID-19 pandemic. This review helped cross-check participants' accounts and provided further background for the research. Thus, the interpretations were developed based on these multiple data sources and triangulation methods, which enhanced the validity, credibility, and rigor of the research, ensuring that the findings accurately and fully reflected the community's views and perspectives.

3.6 Reflections on the Research Process

3.6.1 Positionality

Positionality in research refers to the researcher's perspective in relation to the subject of study and its social and political context, 'determined by where one stands in relation to the other' (Merriam et al., 2001: 411). It encompasses the individual's worldview and the stance they take towards research (Foote and Gau Bartell, 2011, Rowe, 2014). This perspective is shaped by ontological assumptions (beliefs about the nature of social reality and what can be known), epistemological assumptions (beliefs about the nature of knowledge), and assumptions about human nature and agency (Sikes, 2004, Ormston, 2014, Grix, 2019). These beliefs are influenced by an individual's values and personal convictions, which are in turn influenced by factors such as political allegiance, religious faith, gender, sexuality, historical and geographical location, ethnicity, race, social class, and (dis)abilities (Sikes, 2004). Within this context, reflexivity means being aware of impacts of one's positionality on the research design, process and outcomes. According to Hertz (1997), reflexivity is being aware of the researcher's voice as well as preserving the voice of the participants which remains a powerful tool to explore biases and incentives to which they may otherwise be oblivious to (Finley, 2002).

Throughout the research process, I was reflective and aware of my multiple identities - as a young, middle-class, female, educated, Maldivian researcher - and how these shaped my positionality, influencing my approach, interactions, and understanding of the research. There were both advantages and challenges that came with these identities. Being born and bred in the Maldives provided me some advantages associated with being an 'insider', such as being more aware of local cultures, traditions, norms and practices. Most importantly, speaking the same language as the participants allowed me to conduct the research in the native language, fostering much deeper connections with them, including those of different

age groups and diverse backgrounds who may not speak English. This insider advantage allowed me to swiftly establish rapport and connections within the islands, giving me a sense of comfort and belonging during the fieldwork. I was frequently invited to community gatherings, school events, private homes for shared meals and recreational activities such as going swimming and picnics to nearby uninhabited islands with groups of people in the islands. These interactions made me feel accepted and part of the community and allowed me to engage with and observe people's everyday life and have meaningful conversations with them. In addition to these, the prior knowledge and connections in the environment and development sector in the Maldives, as highlighted in section 3.4.1, expedited the participant recruitment process. It allowed me to reach out to colleagues and acquaintances, who had existing connections with relevant stakeholders, with expert knowledge in the field. These relationships and networks I have built over time in the Maldives, facilitated smoother access to information and enhanced the overall research process. Such advantages of being an 'insider' have been acknowledged by scholars such as Bourke (2014) and Darwin and Andrew (2020), stating that an insider, who shares a cultural background, race, religion, or education with the participants, may have inherent advantages in understanding the culture and thus be able to avoid the risk of misconstruing what they see and observe due to potential lack of familiarity.

However, there are also challenges associated with being an 'insider'. One of the key criticisms of 'insider' research is that it lacks the same standards of objectivity and rigor as that of research conducted by an 'outsider', because of the researcher's personal position being 'too close' for objectivity (Brannick and Coghlan, 2007). On this insider/outsider debate, Fleming (2018) noted that both insiders and outsiders have to contend with methodological issues of identity and situated knowledge that comes with it, quoting Chavez (2008: 474) who argued that 'the insider-outsider distinction is a false dichotomy'. In fact, researchers may transition between the roles of an 'insider' and an 'outsider', depending on their similarities or differences with the participants in any given moment in time and space; it is not static (Bayeck, 2022).

In my case, being a Maldivian, sharing similar cultures, identities and language gave me some benefits of being an 'insider' as described above. However, I was still new and an

‘outsider’ to these case study islands, as I was not a resident of either of the case study islands nor had I lived there previously. Thus, this allowed me to navigate (questionable) challenges related to objectivity that arise from being ‘too close’ to the research context. By being reflective of this possibility, I remained a critical observer and interpreter of knowledge, mitigating potential biases associated with insider/outsider status.

In addition to challenges around insider/outsider assumptions, as a young, female researcher, I also had to consider the conservative nature of the islands. It is not customary for a young woman to travel or reside alone for a prolonged period in these islands. During the initial visit to the islands, I was accompanied by a friend or a family member. However, as I established connections through longer stays, I became more accepted and received assistance and support from the island residents. I also developed close ties with local councils in the islands, and a female council member often accompanied me during household visits. Sometimes this made residents think that I was associated with the local councils and doing research for them. Thus, I made sure that those accompanying me during data collection were not present or listening to the conversations I had with the participants and reassured them, at the beginning, that I was an independent researcher and not affiliated with the councils. Being a female researcher, I was also aware of the gender dynamics that shape social interactions and information accessibility in the Maldivian context. This awareness empowered me to establish rapport and engage with female participants in ways that encourage openness and trust. For instance, in Maldivian communities, women tend to be more reserved when interviewed in the presence of men. Being aware of these details allowed me to consider the gendered dynamics of research in the Maldives.

However, being a young, women researcher posed challenges too. I found it challenging to have deeper and meaningful conversations with men in the island, as often women were more willing to be interviewed. To address these challenges, I reached out to an elderly man in the island, who was influential within the community, to help me find male participants who may be knowledgeable and willing to have a conversation with me. He accompanied me to places where most men hung out during their free time and facilitated introductions, which significantly assisted in the recruitment process. I also faced similar

challenges getting a representative view from the younger generation in the islands, as they were more reluctant to speak individually and appeared more reserved. However, by reaching out to a younger resident in the islands with whom I had already fostered a relationship, I was able to address those challenges by inviting a group of young people to a coffee shop and have a group conversation as opposed to individual conversations.

Therefore, being aware of these challenges and making necessary adjustments were instrumental in gaining a diverse viewpoint from island residents and ensuring rigor throughout the research process. According to Cohen et al. (2011), embracing the complexities of positionality through self-reflection enriches the research process and contributes to a nuanced and comprehensive understanding. It helps to ensure that research is conducted with sensitivity to participants' perspectives and cultural contexts. Maintaining reflexivity throughout the research process, as explained above, helped me to ensure that my viewpoints did not overshadow those of the participants, and that the research findings reflect their experiences and insights.

3.6.2 COVID-19 Pandemic

The research was conducted during the COVID-19 pandemic, which presented challenges. As I was in the Maldives when lockdowns were imposed, the movement restrictions did not significantly impact my research, although internal movement restrictions between islands were in effect. Consequently, I made adjustments to field visit schedules when islands were under lockdown and inaccessible. To accommodate this situation, interviews outside of the case study islands were conducted in person and via virtual platforms like Zoom, based on the preferences of participants and the restrictions in place at the time. However, all interviews in case study islands were conducted in person, with strict adherence to local COVID-19 guidelines. Safety measures such as wearing a face-mask, conducting interviews in open spaces, and maintaining physical distance were followed to ensure the well-being of participants and myself. These measures allowed me to continue with the research while navigating the uncertainties and challenges posed by the pandemic.

3.6.3 Methodological Limitations

While efforts were made to ensure a rigorous and thorough research process, I acknowledge several limitations to this study. One key limitation was the relatively limited time spent in

the field. Ethnographic studies often benefit from extended immersion within communities, which enables a deeper understanding of complex social dynamics. Although limited time may restrict capturing some perspectives, as outlined in Section 3.6.1, my background and identity as a Maldivian allowed me to quickly establish connections and rapport with community members. Nonetheless, this limited time in the field may have impacted the depth of data collected, especially from certain groups whose voices are less represented, such as migrant workers—a potentially important group within local food systems. Additionally, as acknowledged in section 3.6.1, the reluctance of younger participants to engage in the study posed a challenge in representing intergenerational attitudes toward food systems. Furthermore, while steps were taken to avoid gender bias in data collection, as shown in Table 3.2 and Table 3.3, the study includes a greater representation of female participants. This is largely due to the nature of the research focus on food systems, a topic women are often more willing and comfortable to speak on within household settings. Finally, it is important to consider that the timing of the study during the COVID-19 pandemic may have influenced some data and perceptions. This extraordinary period may have shaped community views and behaviours related to food security and resilience, possibly introducing unique, time-specific insights that may not fully reflect broader, long-term patterns.

3.7 Conclusion

This chapter has elaborated on the qualitative research approach that was employed in this thesis with the aim of approaching resilience through a human-centric approach unique to island contexts. Combining semi-structured interviews and participant observation offered valuable insights into the intricacies of the food system within the selected case study islands, ensuring insights from multiple perspectives and gaining deep understanding of everyday food-related activities through extended fieldwork and observation. The immersive qualitative approaches used such as the ‘go along’ technique in interviewing and observing everyday life, added depth to the understanding of agency and resilience of people in the islands, by revealing the mundane and routine aspects of life. This chapter has also explored how my identity - as a young, female, educated, Maldivian researcher -

shaped the research process, creating both opportunities and challenges. Some potential methodological limitations were also highlighted in this chapter.

CHAPTER 4
THE MALDIVES CONTEXT

This chapter provides the overall context for understanding the contemporary food system in the Maldives. It aims to highlight some of the similarities of the Maldives with other Small Island Developing States (SIDS), while also illustrating characteristics that are unique to the Maldives based on its distinctive political and colonial history, social attributes such as the sharing of a homogenous religion and its long history of seafaring and trade that has helped foster strong bilateral and diplomatic connections globally. This chapter introduces the case study of the Maldives, highlighting the extent to which it provides a distinctive example of resilience in SIDS. The first section (4.1) provides a brief overview of the Maldives, highlighting its key geographic, demographic, and economic context. The following section (4.2) explores the evolution of the Maldivian economic and trade dynamics as it relates to the food security context of the Maldives, showing its long history of seafaring and trade. This section also provides an overview of the three key economic sectors (fisheries, agriculture, tourism) that are significant to its food security context. Section 4.3 then unpacks the political context of the country, including its unique colonial history and transitions to the current decentralized governance system. It also provides an overview of the existing food governance framework and relevant policies. Section (4.4) provides an overview of the existing health and nutrition context, indicating how development over the years has resulted in both improvements as well as risks to food- and nutrition-related population health outcomes. The final section (4.5) provides the overall context to the COVID-19 pandemic in the Maldives, highlighting the key policies that were implemented in response to the pandemic and specifically how access to and the distribution of food was managed across the country.

4.1 Overview of the Maldives

The Maldivian islands consist of approximately 1190 small, low-lying coral islands, grouped into 26 naturally occurring atolls, extending over 850 km from north-south and 80-120 km in an east-west direction (MEE, 2016) (see Figure 4.1). For administrative

purposes these atolls are classified into 20 atolls (Figure 4.1). Of the existing islands, 187 are inhabited, referred to as Admin islands (NBS 2020). Malé is the capital island. Spanning a territorial area of 115,300 km^2, the total land mass is roughly 300 km^2 (ME, 2012). The Exclusive Economic Zone (EEZ) of the Maldives covers an expanse of 859,000 km^2, with 99% of the nation's territory comprised of oceanic space. The majority of the islands are extremely small, with only few exceeding a land area of 1 km^2 (FAO, 2012), and as a result arable lands for agriculture remains limited and 90% of the food consumed in the country is imported (MEE, 2016).

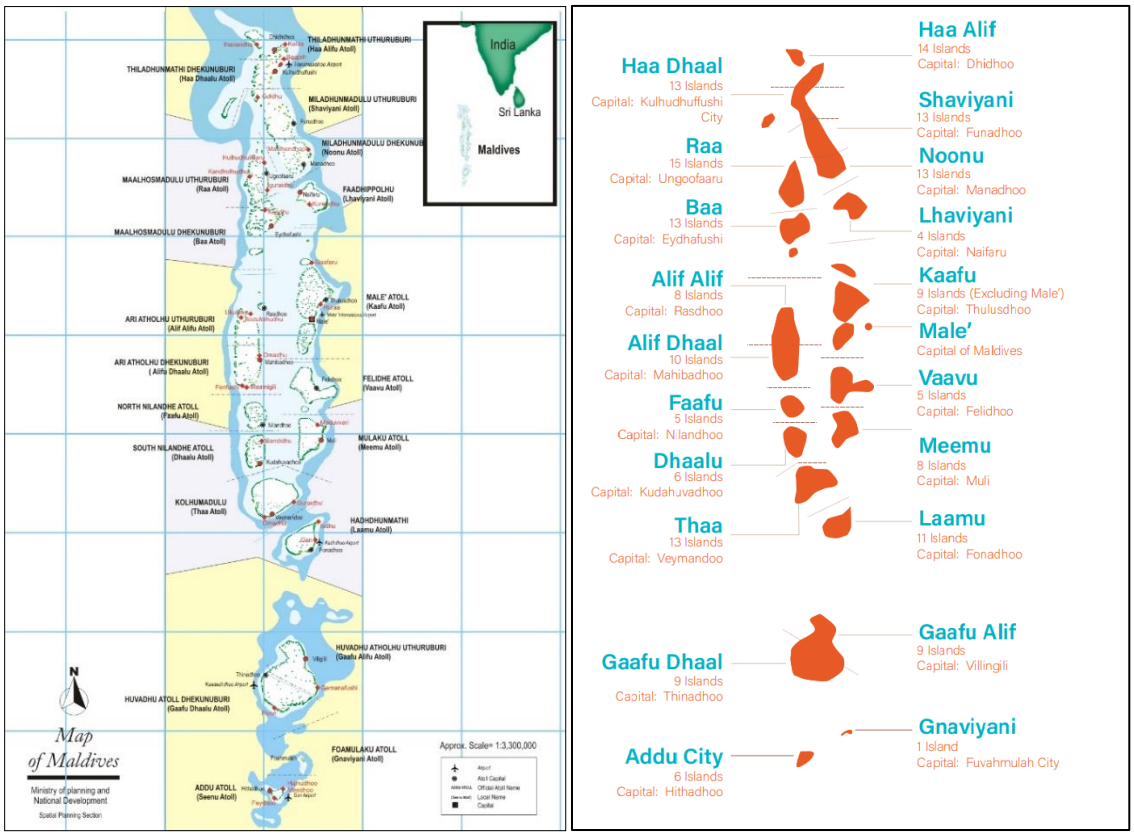

Figure 4.1 Map of the Maldives (left) and administrative atolls and islands (right) (Source: NBS 2022)

The population of the Maldives stands at 512,122 residents as of 2022 (MBS, 2022). According to the 2022 census, 41% of the population lives in the capital island Malé. About 40 admin islands have a population below 500 people, while the majority of the islands have a population within the range of 500-999 people (MBS, 2022). Hence, on average the population of the Maldivian islands remain relatively small with a high concentration in

the capital island, Malé, reflecting substantial internal migration. Presently, there are four urban centres designated as cities: Malé (Central), Addu (South), Fuvamulah (South) and Kulhudufushi (North). The Maldives population speak one language, Dhivehi, an Indo-Aryan language, closely related to Sinhalese. Due to the geographical distribution of the islands, distinct variations in pronunciation (i.e. dialects) have emerged over the centuries, with the most divergent dialects found in the Southern atolls (i.e. Addu, Fuvamulah and Huvadhu atolls).

The Maldives is recognised by law as a 100% Muslim country with the constitution linking citizenship to religious adherence. According to historians, the early trade history, driven by the Arabs and Persians in the region had a significant influence in bringing Islam to the Maldives in 1153 (Maniku, 1986). There remains contested and no clear records of why or how Maldives embraced Islam, however according to most records, the process happened over 60 or so years (Ministry of Foreign Affairs, 2024). Interestingly, historians speculate that the reason the Maldives embraced Islam as an official religion and implemented Islamic Shariah, was a strategic, political and economic move, rooted in nationalistic thinking. Embracing one religion, gave the Maldives a distinct identity and strong sense of belonging, making them unique, distinct and stronger in the face of the political tensions and power imbalances in the region at the time (Maniku, 1986). Some also argue that the establishment of Islam in the country further connected them with larger Muslim networks of trade that were active in the region at the time (Yadav et al., 2020). Nonetheless, since then, the Maldives has remained an Islamic state and the island communities continue to share one religion, which gives Maldivians a shared identity that has contributed to shaping the social and cultural context of the country.

The Maldives is a Democratic Republic, governed by three powers: the Executive, Parliament, and Judiciary. For most of its history (beginning from c. 1500 B.C.), the Maldives has remained an independent state, ruled by sultans and sultanates belonging to a handful of royal dynasties (kings and queens) apart from brief periods of Portuguese rule (during the sixteenth century) and being a British Protectorate from 1887 to 1956 (Knoll, 2018). The Maldives gained independence from the British in 1965, which marked the beginning of the Republic that continues today. The 2000s also marked the beginning of

the democratisation process in the Maldives, which eventually led to a new constitution in 2008 and its first democratically elected president in 2008. Since then, there have been efforts to decentralize governance in the country, with a Decentralization Act enacted in 2010 (Transparency Maldives, 2019).

The geographical location of the Maldives on the equator engenders a tropical, warm, and humid climate, characterized by two dominant seasons. The dry season or the northeast monsoon (*Iruvai*) persists from December to April while the rainy, northwest season (*Hulhuan'gu*) lasts from April to December. Similarly to other SIDS, the Maldivian islands remain highly exposed to the impacts of climate change and sea-level rise. Around 80% of the islands in the Maldives lie less than one meter above sea level, with the highest elevation reaching merely two meters (ME, 2012). According to the Ministry of Environment and Energy (MEE, 2016), as a consequence of this, the Maldivian islands are regularly exposed to various climatic threats, including tropical storms, surges, swell waves, gale-force winds, and heavy rainfall. Adding to these threats, the low elevation and small size of these islands exposes human settlements to the impacts of extreme weather events, as alternatives such as retreating inland or seeking higher ground are impossible (ibid). As such, climate change impacts economic sectors including critical domains such as tourism, agriculture and fisheries which are integral to ensuring food security of the Maldives.

In addition to these environmental challenges, given that the islands are geographically dispersed, inter-island transport remains critical for access to basic services such as education, healthcare, employment and transportation of goods, including food, fuel and medicines. Transportation between the islands is facilitated through private and public sea ferries and domestic flights. With around 90% of the country's territory covered by sea, marine transportation remains vital for the Maldives and the need for land-based transportation is low given the small size of most islands. The mechanization of sea transport, such as locally constructed boats (*dhonis*) and imported high speed boats during the 1970s, marked a key milestone in the development of transportation (Aboobakuru, 2014). Prior to this, sailing boats were the main form of transportation between the islands. Currently, most sea transport services are run by private companies that favour in-demand

routes between Malé and other admin islands. Some island communities, especially those closer to the Malé, operate private-owned regular ferry services for their everyday needs such as trade, shopping, and healthcare. The Maldives currently has 18 airports - six international and twelve domestic - and much of this development of transport infrastructure is the result of the rapid growth in the tourism sector in the country (Government, 2019). This rapid increase in transportation due to the establishment of domestic airports have improved connectivity between the islands.

In terms of the economic context of the country, the Maldives is currently classified as an upper-middle income country. Despite being a SIDS, the Maldives has the highest GDP per capita in South Asia, exceeding USD 9000 in 2020 (NBS, 2020), owing particularly to its high end luxury tourism sector. As with many other SIDS, tourism remains the key economic sector in the Maldives, contributing to 21% of the GDP in 2021 (NBS, 2021). While tourism makes a key contribution to the Maldivian economy, fishing has is a key livelihood activity for the Maldives and remains the key source of foreign income into the country. However, its overall contribution to the GDP remains low, at only 6.4% in 2020 (NBS, 2020), due to the rapid growth of tourism sector since its introduction in 1972. Yet fishing remains as one of the biggest sources of employment and fish and fish products accounts for 98% of Maldives exports (NBS, 2020). The contribution of agriculture to the overall economy of the country is low, due to factors such as the lack of arable land, small size, and poor quality of soil. The current contribution of the agriculture sector to the GDP remains at 1.2% (NBS, 2021). Despite its low contribution to GDP, agriculture is still an important livelihood and subsistence activity for islanders, especially through backyard gardening, and plays a crucial supplementary role in maintaining food security in the country.

In terms of human development, the Maldives has made progress, however, there remains challenges. According to UNDP (2019), the Maldives Human Development Index (HDI) value grew by 32% from 1995 to 2018, positioning it amongst the countries in the ‘High Human Development Group’. For example, health indicators displayed notable improvements, with life expectancy at birth increasing by over 17 years between 1990 and 2018 (UNDP, 2019). The death rate per 1000 live births also witnessed a significant drop of about 93% from 1990 to 2017 with the average life expectancy currently standing at

83.3 (NBS, 2021). Education indicators have also seen positive gains, with average years of schooling increasing by nearly three years, and per capita income doubling (UNDP, 2019). However, these improvements are not equally distributed across the population, leading to widening socio-economic and socio-cultural divides between urban and rural islands, gender, and age groups. When adjusted for inequality, the Maldives' HDI reduces by 20% (UNDP, 2019). Therefore, despite the incidence of poverty being considered marginal, there are significant disparities in access to basic social services across the archipelago and different groups of people (i.e. gender).

The above overview of the Maldives provides a background to the current socio-economic, environmental and development context of the Maldives. The Maldives shares similarities with other SIDS, in terms of its geography, exposing them to impacts of climate change and sea-level rise. At the same time, the Maldivian economy is constrained, with a high dependency on tourism. As with many other SIDS where land is limited, agricultural productivity remains low in the Maldives with a high dependency on imports for food security. Such similarities with other SIDS make the Maldives a relevant case study to examine the resilience of SIDS. However, the Maldives also has a unique economic and political history dating back over 2500 years. Thus, by unpacking the history of the Maldives, the following section aims to elucidate how its history has contributed to shaping the contemporary trade, economic and political relationships which have strong linkages to the current food security landscape in the country.

4.2 Evolution of Trade and Economic Landscape

Based on the oldest legends and historical records of the Maldives, the islands have been inhabited for over 2500 years (Mohamed, 2005b). The initial settlers, known as *Dheyvis*, are said to have arrived from Kalibangan, India (Shihabuddine, 1588-1658). Despite their potential origins in agricultural lands of the Indian subcontinent, the high littorality of the Maldivian islands coupled with poor quality of soil and small size, made farming as a livelihood unsuitable. As a result, since the very beginning, Maldivians have relied on the ocean and its resources for sustenance, primarily through fishing and trade. There remains a strong history of seafaring and trade in the country which extends to this day. Naseema Mohamed, a key historian in the Maldives writes:

> Maldives has always been one of the most nautical nations of the Indian Ocean region. Over ninety eight percent of the country consists of the sea; therefore, internal travel between the atolls as well as voyages outside the country required the people to be seafarers. This factor is in evidence, throughout the known history of Maldives. (Mohamed, 2005a: 1)

This strong nautical knowledge and ability to navigate challenging currents and turbulent waters, enabled Maldivians to travel through the vast Indian Ocean, for the most of the year, establishing and sustaining robust trade connections (Mohamed, 2005a). According to Mohamed (2005b), the season for sailing east was during the south-west monsoon, commencing from the second week of April, facilitating journeys to Bengal, Burma, Thailand, Aceh, and Indonesia. Conversely, the north-east monsoon beginning in the second week of December, provided favourable conditions for travel to Arabia, the Persian Gulf, and the East Coast of Africa (ibid). There are records of these early voyages of Maldivians to far-reaching corners of the world. For example, Thajuddeen et al. (1981) documented some of the earliest recorded travels, including a visit to the court of Emperor Julian in Rome (*c*.330-400 A.D.) and two visits to China carrying gifts to the Chinese Emperor (first visit in 658 A.D. and the second in 662 A.D.) (Pelliot, 1904). At the same time, written accounts also attest to regular voyages to Aceh during the appropriate seasons (Mohamed, 2005a).

In addition to the strong nautical skills that the Maldivians were famous for, historical accounts provide evidence of strong boatbuilding skills that the Maldivians had developed from the very beginning, due to its strong connections to the ocean. Naseema Mohamed writes:

> In Maldives, boatbuilding is called *dhoni banun*, the term *banun* meaning tying. This is just how the early boats were built; they were literally tied together, no iron or other metal was used, and the old term survives to this day…the Maldivian master boat-builder did not use diagrams or sophisticated instruments to turn out the perfect boat. He did it all, relying on experience and observations. (Mohamed, 2005a: 13-14)

According to historical accounts of Al Idrisi in 1150 (Mohamed, 2005a), at the time, Maldivians constructed boats based on locally sourced materials such as planks of coconut wood which were tied together edge to edge with rope twisted from coconut fibre, which

was called *roanu (*Rope made of coconut fibre*).* Oil from sperm whale is also speculated to have been used for caulking (material used to seal joint or gaps). Other historical travellers such as Ibn Batuta, noted that because the Maldivian boats were built this way, not using iron, those boats were better equipped to navigate challenging currents and rocky shores and did not easily break when they hit a rock underneath (Gray and Bell, 2010). This boatbuilding craftsmanship, that the Maldivians were famous for, was based on their experiences and observations or Indigenous Knowledge. The basic kind of boat used in the Maldives from early times (speculated to have been influenced by the Egyptian, Mesopotamian and Indus Valley civilizations) is the *dhoani* (English translation boat), which was used for fishing, trading and travel. According to Mohamed (2005a), at the time of first contact with the Portuguese in 1503, Maldivians had also started using a type of craft, regionally known as *gundra* (boats built of coconut wood, frequently used for trading visits to the Western coast of India) showing evidence that Maldives seafaring and boatbuilding skill continued to evolve and further facilitated travel and trade between the islands as well as overseas for the Maldivians.

Just as Maldivians, with their strong nautical and boat-building skills, travelled long distances and established connections globally, there also exist records of frequent trading vessels that arrived in the Maldives. Historians attribute this to the strategic location of the Maldives within the Indian Ocean, positioned along the Spice Trade Route (See Figure 4.2). This geographical advantage made Maldives a convenient resting stop for traders to stop by, replenish water and food reserves and seek refuge during bad weather (Mohamed, 2005a). For this reason, many travellers in the Indian Ocean knew of the Maldives and the Maldives became an important ally for anyone who had a stake in this prominent trade route at the time (Van Mehran, 1866). According to these records, it appears that the north-east monsoon brought trading vessels from the eastern parts of the Indian Ocean, who then stayed until the arrival of favourable winds from the South-east monsoons to return to their home countries. Similarly, the south-west monsoons, brought trading ships from the eastern regions of Africa, Arabia and Persia on their way to the east, following the spice trade (Mohamed, 2005a).

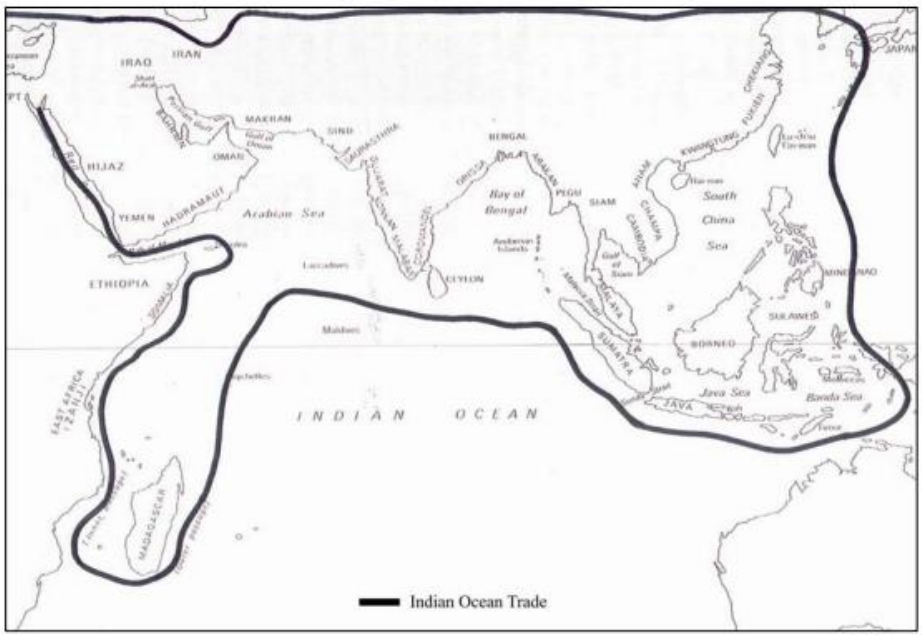

Figure 4.2 Map of the Indian Ocean Trade Route (Extracted from Mohamed, 2005: 6)

During this early trade history (starting as early as the mid-10th Century), Maldivians mainly traded in coir (coconut fibre), cowrie shells (common name for a group of shells of sea snails that were used as a form of currency), fish, and ambergris (grey amber, produced in the digestive system of sperm whales, used as a medicine, production of perfumes and is considered highly valuable). Amongst these, cowries held a particular significance in making the Maldives a strong trade ally and wealthy country in the region. A Persian merchant Sulaiman wrote that 'the wealth of people [in the Maldives] is constituted in cowries' (Litster, 2016: 6), which was the oldest written reference noting the importance of cowries to Maldivians during 851 C.E. Cowries were particularly sought after in the region at the time, as it was used as a standard currency of the Indian trade route from ninth to the nineteenth century (Yadav et al., 2020). Historical accounts (Chaudhuri, 1985) indicate that the Maldivian cowries were exported to East Africa and the Middle East, and facilitated overland caravan trade and bilateral exchanges to West Africa. In fact, in 1290, Marco Polo documented the use of cowries as currency in China and Bengal (Mohamed, 2005a). Historians speculate that even then, such trade were mainly in exchange for food staples such as rice which was not produced in the Maldives, as agriculture remained

limited in the islands (Mohamed, 2005b). For example, Ibn Batuta recounted the Maldives trade relations with Bengal in 1327, stating that cowries 'are sold to the inhabitants of Bengal for rice, because the cowries are also currency in Bengal' (Gibb, 1953: 243). These accounts suggest that trade has always been significant in meeting the food security needs of people in the Maldives. However, by the 19th century, the cowrie trade collapsed due to shifting global economies and the emergence of a competitor—the ring cowrie Monetara annulus—which led to hyperinflation (Litster, 2016). As a result, tuna swiftly replaced the cowries as the key export of the Maldivian islands, and to date remains the key export of the country (see Section 4.1).

While the above records shows that the Maldives have been well-connected throughout their history, particularly through trade, there are also recorded points in history of economic tensions that directly or indirectly affected their food security. One such moment in history is the economic monopolization of the Maldives trade dynamics, by the well-known Borah Merchants in the 18-19th century, who came from the neighbouring Sri Lanka and the West Coast of India (Phadnis and luithui, 1981). This monopolization was facilitated by poor decisions made by the government at the time, that gave permits for these merchants to settle in the capital island Malé and trade. As a result, they soon opened warehouses and shops in Malé, and gradually started taking control of the once flourishing and diverse foreign trade landscape of the Maldives. Gradually over time, the entire foreign trade was controlled by the Borah Merchants (Sattar, 2019) including the price of key exports such as fish and imports. This monopolization led to civil unrests, recorded in historical accounts as the '*Bodu Hulhu'*, meaning Great Fire (Sattar, 2019), which resulted in the burning down of most warehouses and shops established by Borah Merchants at the time. At the time, these Borah Merchants were 'subjects' of the British colonial power (Sattar, 2019). The British viewed this an opportune moment to get involved in the Maldives, leading to their growing presence (Shakeel, 2021). According to historians, the Maldives signed a protectorate treaty with the British at the time (1887) to keep them at bay and reduce their influence in the internal affairs (Phadnis and luithui, 1981).

These economic and political tensions were also happening during the Second World War, a time when Maldivians, as with much of the rest of the world, were gravely suffering. The

Second World War remains a significant moment in the history of food security in the Maldives, as it was the time during which Maldivians experienced the only recorded widespread famine in the country. The Second World War had a huge impact on the Maldives' food security for a number of reasons; one being the politics around the Bora Merchants and their monopolization over the economy. This was exacerbated by challenges in selling the Maldivian dried fish to global markets, due to shipping disruptions, which resulted in a severe drop in the price of fish. Thus, there remain records of people in the Maldives dying of starvation (Adam, 2021). Further, some argue that poor judgement, irrational spending of government resources and foreign reserves, government ill-decisions and internal politics and corruption caused the famine to escalate (Adam, 2021).

Accounts of how individual islands suffered at the time of the Second World War were revealed during this research. A nearly 100-year-old resident in Magoodhoo Island recalled this time of his childhood:

> When I talk about those times, it makes me really emotional. So many people died during that time due to hunger. Even my both aunts and my aunt's daughter, all three of them died on the same day. When they died all that we could see were their bones. (Masood, Magoodhoo Island)

People recalled resorting to eating boiled *Magoo Faiy,* a bitter leaf that was readily available in the islands. They resorted to eating whatever was available from their local islands. Those islands with more land and food crops had better food security. People also recalled huge disparities between access to food between Malé elites and the rest of islands at the time. Those in Malé and the elites had rice and other food staples, while people in other islands starved. These recalled local histories align with historians analyses that indicate the famine was amplified by inequitable distribution of food and resources, internal politics and government corruption (Adam, 2021).

These points in history remain significant and shape the current trade and food security context in the Maldives. Towards the end of the Second World War, a group of educated young reformists started taking an interest in politics and governance of food in the country following the sufferings of World War 2. This led to efforts to take back control over the foreign trade dynamics of the country, by banning Borah merchants from trading in the Maldives, establishing a state-owned store to control the trade of fish in the country, and

other strategic interventions such as bulk-buying and resale of food and food rationing (Sattar, 2019). For example, in 1942 the *Dhivehi Rayyithunge Bodu Store* - a state-owned establishment - was established under a Parliamentary Act, and was operated by the state as an intermediary that made direct fish purchases from local fishermen and sold to traders overseas. This state-owned store also bought food staples from overseas and distributed them to the islands. There are also accounts stating that officials from Malé were sent to islands to teach them how to cultivate local produce. Staple houses or '*Kaaduge'* were established in each island, overseen by tax collectors or *Vaaruverin* (later known as *Atholhuverin*) (Adam, 2021). The price of fish was set, ensuring a fair and equitable trade for all fishermen.

To this day, such principles remain and there exists a strong state control over the foreign trade in the country, through a State Trading Organization (STO) and the Maldives Industrial Fisheries Company (MIFCO). The role of the STO is particularly significant in the current food security discussions in the Maldives, as it was established in 1964 then named Athireemaafannu Trading Account (ATA), to manage and control the importation and distribution of food staples – flour, rice, sugar- in the country (STO, 2022). Currently, food staples in the country are imported by STO, on behalf of the government, and sold at a controlled price to all islands, facilitated through blanket subsidies given by the government to ensure consistent access to key food staples in the country.

As soon as the Maldives gained independence from the British, in the year 1965, they were quick to capitalize on this new-found independence by establishing strong multi-lateral and bilateral connections globally. The Maldives joined the United Nations in 1965, and soon after became a founding member of the South Asian Association for Regional Cooperation (SAARC) in 1985 (Ministry of Foreign Affairs, 2024). The Maldives has also been a member of the World Trade Organization (WTO) since 1995 and is currently a member of 63 other international organizations. The Maldives also currently has strong diplomatic relations with over 172 countries globally (ibid).

Thus, the Maldives trade dynamics have emerged from its unique seafaring history and global connections. The Maldives trade dynamics have evolved from previous experiences and the role of the State in maintaining control over foreign trade through the establishment

of State Enterprises and efforts to strengthen and diversify trade connections. This evolution of trade provides a useful context to understanding the existing food system resilience landscape of the Maldives. However, given its high import dependency, fishing, agriculture and tourism remain key economic sectors that influence food security in the Maldives. The following sections explore these three key sectors and their contribution to food security in the Maldives.

4.2.1 Fishing

As alluded to at the beginning of this section (Section 4.2), fishing has always been a key economic and livelihood activity for the Maldivians. Due to its high littorality, fish is a key food staple in the Maldivian cuisine. According to Yadav et al. (2020), Ibn Batuta was the first to record some aspects of the Maldivian diet and cuisine, in his travel memoirs, which according to him consisted of:

> …a fish like the lyroûn, which they call *koulb-al-mâs* [skipjack tuna]. Its flesh is red; it has no grease, but its smell resembles that of mutton. When caught at the fishery, each fish is cut up into four pieces, and then slightly cooked. It is then placed in baskets of coco leaves and suspended in the smoke. It is eaten when perfectly dry. (Gibb, 1953: 243)

In this record, Ibn Batuta, during his voyages to the Maldives in the 14th Century also mentioned that dried fish was exported to India, China and Yemen at the time (Yadav et al., 2020). Other historians have indicated the significance of fish in the Maldives, such as Duarte Barbosa, noting in the 1500s that the Maldivian islands had a 'great store of dried fish' that was carried with cowries to the Kingdom of Cambaia (present day Gujurat in India) and Bengal (Dames, 1921: 105). While traditionally, most of the fish caught were consumed, these historical accounts assert that a great deal were exported. In fact, the history of fish trade in the Maldives suggests that, by the mid-15th century, the Maldives trade in dried fish was well established and had grown rapidly around the sub-continent, with Sri Lanka a central hub for the 'Maldive Fish' (Yadav et al., 2020).

However, this historical fishing context changed from the 1970s, owing to the decline in the dried fish market in Sri Lanka, due to a deficit in foreign currency and an eventual collapse of their economy (Yadav et al., 2020, IPNLF, 2013). As a result, during 1971 the Maldives issued an invitation for foreign investment in the fishing sector in the Maldives,

reaching out to Spain, Thailand and Japan (IPNLF, 2013). In 1972, agreements were signed between these countries to allow collector and freezing vessels to purchase frozen fish from local fishermen in the Maldives (ibid). Seeing the demand for frozen fish in these countries, this significantly shifted the historical fishing dynamics in the country, from one that was geared substantially towards exports over consumption, and this is evident in the current fishing trends and figures in the Maldives (See Figure 4.3). Furthermore, in 1972 Maldives also signed agreements with Japan, which led to the opening of the first fish cannery in the country, the Felivaru cannery, and the supply of 100 engines of 28 horsepower (IPNLF, 2013). This eventually led to the mechanization of the Maldivian fishing fleet, and as a result fish production started growing rapidly. By 1995, further storage and processing facilities were established (ibid).

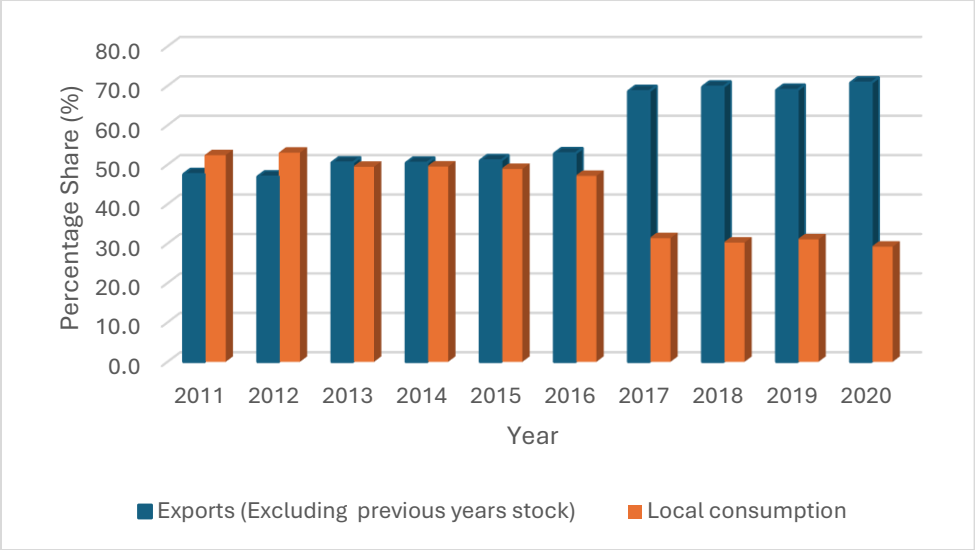

Figure 4.3 Fish exports vs fish used for consumption (data sources: NBS 2020)

Currently, a large portion of skipjack and yellowfin tuna is exported, with yellowfin tuna sent mainly in chilled or frozen form to Europe, and frozen skipjack tuna exported to Thailand for canning. Reef fishing has also increased due to demand from the tourism sector and the growing export of live grouper to the Chinese and European market (IPNLF, 2013). In addition to large scale export of tuna, locally caught fish is also sold to the cottage industry, typically comprised of small-scale, often family-operated artisanal businesses,

who commonly purchase fish for smoking, drying, or producing fish paste (locally known as *rihaakuru*). However, the cottage industry is facing challenges due to increasing competition from large-scale commercial export processors, as their access to larger fish is limited, left with smaller fish which do not meet the weight requirement of exporting companies (IPNLF, 2013). Despite the rapid growth in the fish export market, fish remains a key food staple for Maldivians. In fact, the per capita consumption of fish remains high and exceeds 161,160 kgs annually, averaging around 181 kg per person per year (ME, 2012).

4.2.2 Agriculture

As mentioned in the overview section (4.1), the overall contribution of agriculture to the GDP remains low, due to factors such as limited arable land, small size and poor quality of soil. Despite its low contribution to GDP, agriculture has remained a significant livelihood for islanders, especially through backyard gardening, and plays a crucial supplementary role to maintaining food security. Historical accounts show that taro, yams, millet and fruits were cultivated to some extent in the northern islands, while coconut palms were cultivated throughout the archipelago, with the island net worth designated based on their coconut trees (Maloney, 2013). While there remain historical records of the cultivation of some local produce, these records also indicate that even then, rice and wheat were imported from Sri Lanka, India and Burma (Gray and Bell, 2010), and there were frequent exchanges of local produce between the islands. Such records indicate that agriculture has remained an important livelihood and supplementary source of food.

Currently, agriculture in the Maldives is primarily based on subsistence farming although there has been a more recent trend towards semi-commercial and commercialized farming practices in some islands with bigger land area (Ministry of Fisheries Marine Resources and Agriculture, 2019). Women are major contributors to this sector. The four predominant farming systems in the country are home gardening, bush fallow or shifting cultivation, year-round cultivation, and small-scale backyard chicken farming (ME, 2012). Each family is entitled to a rent-free homestead allotment, but limited land availability and alkaline, low-fertility soil pose challenges (ME, 2012). Varying estimates exist on the land area that is suitable for agricultural production in the Maldives. National records show 4,000

hectares of arable land, with only 573 hectares cultivated as of 2012 (Ministry of Fisheries Marine Resources and Agriculture, 2019, FAO, 2012). Land allocation is decentralized, with local councils having authority over leasing or renting land according to their regulations (NBS, 2019).

Some main crops produced include (but not limited to) watermelon, coconut, pumpkin, banana, chili, eggplant, taro, cassava, and brinjal (see Figure 4.4). Surplus crops are often gifted to neighbours and friends while some is sold to Malé Market or neighbouring islands leading to semi-commercialization, especially in islands with good transportation links (MoFA, 2016, ADB, 2005). More advanced commercial agriculture exists on islands with sufficient land, good quality soil and water resources or when large uninhabited islands have been leased for commercial agriculture, but remains to handful of islands (ADB, 2005). The major growing season in the Maldives is from May to September (wet season), during which period locally produced fruits such as bananas, watermelons, papaya, coconut, and mango are widely available (ibid). However, a substantial amount of these locally grown varieties is also imported as Maldives is not able to produce any of these locally, at the required scale to meet the needs of the entire population. Poultry farming is limited, with a few modern poultry farms and small-scale chicken and goat farming on very few inhabited islands. While semi and commercial farming are increasing, the marketing of agricultural crops remains challenging due to the scattered nature of the islands which limits access to markets.

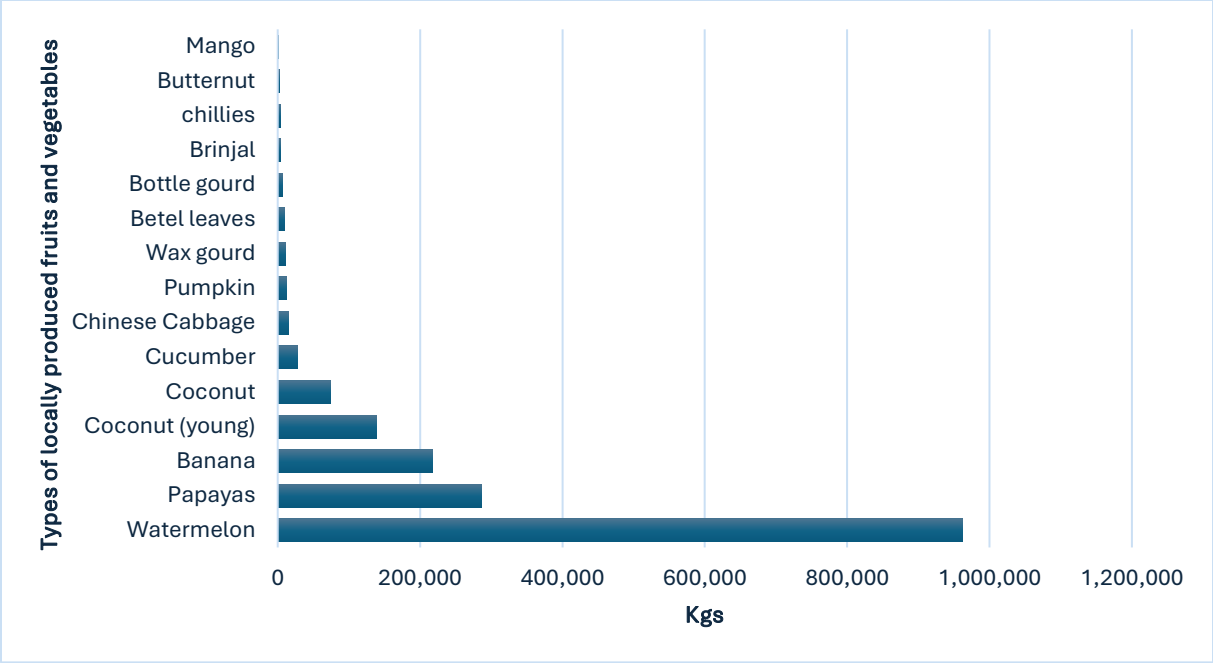

Figure 4.4: Major agricultural products produced (Source: NBS Data 2023)

4.2.3 Tourism

The development of tourism is also significant to the overall economy of the Maldives and its food security, as tourism remains the key source of revenue and a source of foreign income for trade/import of food. The history of tourism in the Maldives stems from the early 1970's with the initial visit of 22 tourists from Italy. Over time, the industry has evolved to encompass all forms of holidays associated with the 3 'S's: sun, sea, and sand (Giampiccoli et al., 2020). Services significantly improved from the 1980s onwards, with the development of the first Tourism Master Plan in 1983 and the institutionalization of the one-resort one-island (OROI) concept (MoT, 2021, Giampiccoli et al., 2020). In the OROI, most tourism production and consumption (e.g. lodging, restaurants, recreation) take place only on selected uninhabited islands leased exclusively for tourism purposes. Over the years, the government of the Maldives have placed a significant focus in growing the tourism industry. For example, in the 1990s the Maldives liberalized Foreign Development Investment, attracting foreigners to invest in and operate resorts. In 2010, the government deregulated tourist establishment restrictions, allowing guesthouses to be built on inhabited islands. Currently 28.5% of beds registered in tourist guesthouses and hotels

are in islands where locals live (MoT, 2021). Beds registered in tourist guesthouses have risen 13-fold since 2008 (MoT, 2021). As of April 2022, of the 1,190 Maldivian islands in 20 atolls, 176 were registered as resorts (MoT, 2021).

The tourism sector in the Maldives is highly volatile to externalities, both environmental and economic. For example, following the 2004 tsunami there was a significant drop in tourist arrivals (See Figure 4.5) and political instability, religious radicalization and acts of terrorism have all affected the tourism industry (Zuhuree, 2021). For example, as visible from Figure 4.5, the decline of tourist numbers in 2009 was a result of the global financial crisis, and the substantial drop in 2020 is attributed to the COVID-19 pandemic. However, despite the closure of borders for three months in 2020 due to the virus, the Maldives' tourism sector achieved a record high, demonstrating remarkable resilience and a quick recovery from the economic shock (See Section 4.5 for the specific Covid-19 related responses and recovery measures taken).

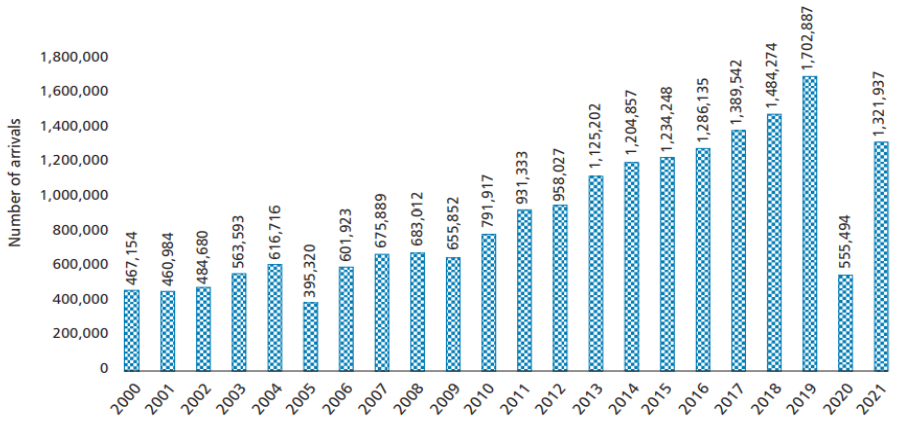

Figure 4.5 Tourist Arrivals from 2000 - 2021 (Extracted from MoT 2021)

The rapid growth of the tourism sector in the Maldives has contributed significantly to the overall economic development of the Maldives. It has also had a significant impact on infrastructure development, especially the establishment of transportation links between the atolls and the islands and the development of regional airports (see Section 4.1). Tourism is also the main generator of jobs, government revenue and investment in the country (MoT, 2021). According to the Ministry of Tourism (MoT, 2021), in 2021, tourism

revenue alone contributed to 42.9% of government revenue, which significantly helps the Maldives balance payments and contributes to consistent flow of imports, including food.

4.3 Politics and Governance

The political context and current governance landscape of the Maldives shapes how resources are governed, including food. As mentioned in section 4.1, the Maldives was a monarchy ruled by dynasties of kings and queens over a long period of time up until the Portuguese arrival in the Indian Ocean. Portuguese invaded the islands in 1558 B.C, and ruled over the Maldives for 15 years until they were defeated by Muhammad Thakurufaanu and a small group of his compatriots in 1573 (Ministry of Foreign Affairs, 2024), which reinstated the monarchy.

Again in the 17th Century, foreign powers attempted to invade the Maldives from the south coast of India; the Raja of Cannore (an Indian King or Prince) dispatched a Malabar party to attack the Maldives which was eventually defeated (Ministry of Foreign Affairs, 2024). After this attack, the Maldives established diplomatic ties with Sri Lanka, to get political support in times of instabilities (ibid). In 1671, the Dutch had interests in the Maldives, through its base in Sri Lanka, however they only surveyed the Maldives. By the beginning of the 19th Century, the British had taken over the region and were starting to influence the Maldives through its 'subjects', the Borah Merchants (See section 4.2). The Maldives Sultan at the time entered into a signed contract with the British Governor of Ceylon turning the Maldives into a Protected State of the British, although not an occupied British Protectorate (Phadnis and luithui, 1981). Under this 'protected status', the British government promised the Maldives military protection and non-interference in local administration (ibid). Even during this period, contact with British colonial power was intermittent; and the colonial era did not have the deep impact on the social and economic structure of the islands, as it did in other places like Sri Lanka (Phadnis and luithui, 1981). Thus, the Maldives have remained largely free from colonial domination of the kind employed in other islands in the Indian ocean at the time. The Maldives gained independence from the British in 1965 (Ministry of Foreign Affairs, 2024). This put an end to the long reign of sultans in the Maldives and paved the way for the Republic (Hazum, 2023).

For the reminder of the 20th Century, the Maldives was ruled by autocratic leaders without significant opposition until the early 2000s. The beginning of the 2000s witnessed a crucial turning point in the country's political history, leading to a movement towards democratization and inclusive development. This process culminated in the rewriting of the constitution in 2008, establishing a democratic regime in the Maldives (Transparency Maldives, 2019), with Maldives having its first democratically elected President in 2008. Given these political transitions, the governance system in the Maldives has undergone significant changes, affecting the administration of the atolls and islands (Transparency Maldives, 2019).

The end of the 1980s marked the beginning of decentralization reform, with the aim of addressing lack of community engagement in decision-making processes. Atoll Development Committees (ADC) and Island Development Committees (IDC) were established in the 1980s (Transparency Maldives, 2019). Island Women's Development Committees (IWDCs) were set up in inhabited islands in 1992, with the aim of empowering women through Income Generating Activities. However, such efforts remained insufficient and highly criticised as they were limited to cleaning services or tailoring courses, which did not empower women as they reproduced stereotypical gender roles (Transparency Maldives, 2019, Hope for Women, 2012).

A new atoll development approach emerged in the 1980s, driven by international donor projects that emphasized community based approaches to empower and govern local communities (Transparency Maldives, 2019). Such community empowerment projects gained recognition and success during this time and the government initiated research and further consultation on decentralization in the early 2000s. During this time the growing domestic and international pressure for political reform prompted the government to announce the 'Roadmap for the Reform Agenda,' in 2006, which included objectives for decentralization (Transparency Maldives, 2019). The new constitution was ratified in 2008, allowing for the election of local island and atoll leaders in the Maldives (Transparency Maldives, 2019).

Although this formalized the decentralization process in the country, progress continues to be slow. In April 2010, a Decentralization Act was passed that led to the establishment of

a Local Government Authority (LGA) to monitor and coordinate the work of local councils. Additionally, elected atoll and local councils were formed, and the Act stipulated the creation of Women's Development Cooperations (WDC) in each island with members elected by women of the community. However, owing to changes in governments and political views, subsequent amendments have reduced the council's autonomy and capacity, leading to concerns about the re-centralization of powers (Transparency Maldives, 2019). More recently, however, some of these powers have been restored, providing greater fiscal autonomy, allowing local councils to collect revenue from the services they provide (Presidency Maldives, 2020). For example, local councils are now entitled to 100% of the revenue from the land they rent out in their islands, while also having power to create and operate businesses that are locally beneficial (ibid). Councils are also encouraged to create island specific land use and community development plans, to govern local resources and de-centralize development (MILG, 2023). Further, recent amendments reserve 33% of council seats for women (Presidency Maldives, 2020). Despite these efforts, progress in enhancing decentralized governance and empowering local communities has remained slow in the Maldives, owing to political tensions and lack of resources, knowledge, and imbalances in power.

4.3.1 Food Governance and Policies

While the above political and decentralization evolution remains useful to understand the overall political context, this sub-section provides a background to the current mechanisms and policies in places to specifically govern food in the country. Food governance in the Maldives involves a variety of government agencies, leading to a significant separation of powers. There is no single agency, comprehensive policy or legislation outlining food governance in the country (See Figure 4.6 and Figure 4.7). However, two key policy documents - the National Food Safety Policy 2017-2026 and the National Fisheries and Agricultural Policy 2019-2029 - are important frameworks for food governance. In addition, various food safety legislations, regulations, and standards govern food import, export, and production in the Maldives. These policies and standards are amended to meet international treaties and obligations to which the Maldives is a party. The Maldives collaborates with UN organizations and international standard-setting bodies and, as a member of the WTO, the Maldives is committed to implementing agreements related to

food safety and biosecurity to align with food standards, guidelines, and recommendations for import and export of food and food products (MFDA, 2017). However, there remain several concerns over weak implementation of such policies and regulations, owing to factors such as overlapping mandates across different institutes and lack of defined roles and responsibilities of various stakeholders (MFDA, 2017).

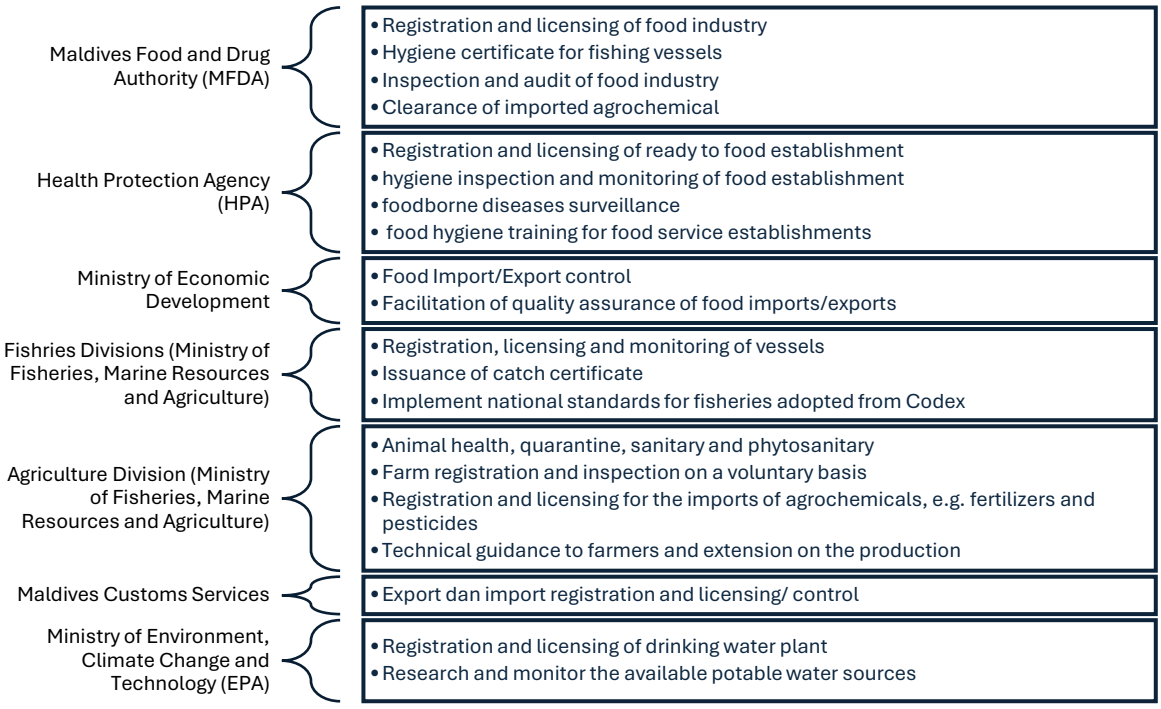

Figure 4.6 Agencies that oversee food governance in the Maldives (Source: Maldives Food and Safety Profile, MFDA 2019)

Figure 4.7 Key policies relevant to Food Governance in the Maldives (Source MFDA 2019)

4.4 Health and Nutrition

Given the focus of this thesis on the food security of the Maldives, this section provides an overview of the Maldives health and nutrition context. Economic growth and development (see sections 4.1 and 4.2) has led to progress in the overall health status of the country. For example, since the 1990s there has been improvements in life expectancy and declines in fertility and mortality rates in the Maldives. According to census data, the total fertility rate (TFR) decreased from 6.40 children in 1990 to 2.1 children in 2016-17 (Ministry of Health, 2016). Similarly, the Crude Death Rate (CDR) has consistently decreased, with the average CDR standing at 4 per 1000 population as of 2021(MBS, 2023). Between 2000 and 2014, life expectancy at birth increased from 70.0 to 73.1 years for men and from 70.1 to 74.8 years for women (Ministry of Health, 2016). The Millenium Development Goals (MDGs) objectives concerning child mortality have been successfully met in the Maldives, which aimed to reduce under-five mortality to 16 per 1000 live births by the end of 2015 (ibid). Infant and child mortality rates exhibit steep declines during the 1980s and 1990s, culminating in rates of 10 per 1000 live births for under-5 mortality and 8 per 1000 live births for infant mortality in 2014 (Ministry of Health, 2016). However, a critical challenge

for further decreasing infant mortality lies in limiting neonatal mortality, which constituted 63% of infant deaths in 2014 (ibid). The MDG objective of reducing maternal mortality has also been attained in the Maldives. Specifically, the maternal mortality rate declined from 69 to 13 per 100,000 live births between 2006 and 2012 (Ministry of Health, 2016).

Despite overall improvements in the health status in the Maldives, significant concerns persist regarding food security and nutrition, particularly among young children. For example, the findings from the Global School Health Survey (GSHS) (Ministry of Education, 2014) highlighted low rates of habitual fruit and vegetable consumption among children aged 13-17 years, with only 23% consuming fruit two or more times per day and 10% consuming vegetables three or more times per day. Physical activity levels among students are also troubling, with only 24% engaging in physical activities for a minimum of 60 minutes over five days in a typical week. A significant 42% of children between the ages of 13-17 years spend more than three hours daily in sedentary activities. These findings underscore the need for targeted interventions to address dietary habits, increase access to nutritious food options, and promote physical activity among the younger generation in the Maldives.

Obesity is a significant health and nutrition concern in the country, particularly amongst those aged between 15 and 49 years (Ministry of Health, 2016). According to the Ministry of Health (2018), nearly half of women and over one-third of men are classified as overweight or obese. The Ministry of Health (2016) reports that the main causes of high obesity rates and NCDs are the overreliance on processed foods, sedentary lifestyles and high dependence on eating out in restaurants which often serve highly processed food as well as caffeinated and fizzy drinks. The ready availability and marketing of processed foods and junk food is also a concern. Additionally, mechanisms to coordinate between food security, food safety interventions, and nutrition programmes are lacking. Agricultural and fisheries programmes primarily prioritize economic activities, with food security a secondary outcome (Ministry of Health, 2016). As a result, the Maldives is currently undergoing an epidemiological transition from a state characterized by a high prevalence of communicable diseases to one marked by an increasing burden of non-communicable diseases (NCDs) (Ministry of Health, 2016). There is a higher prevalence of risk factors

such as tobacco use, consumption of high-sugar and high-fat foods, and sedentary habits, making chronic NCDs major contributors to morbidity and mortality in the Maldives.

Despite these concerns, there have also been improvements in some aspects of nutrition as indicated in Figure 4.8, particularly in improved trends in child stunting and wasting rates in the Maldives. The percentage of underweight children under 5 years of age has gradually decreased from 43% in 1996 to 15% in 2017, and stunting has similarly declined from 30% in 1996 to 15% in 2017 (Ministry of Health, 2018). However, a micronutrient survey in 2007 unveiled deficiencies in iron, zinc, and Vitamin A, largely attributed to inadequate weaning and feeding practices among infants and children (Ministry of Health, 2016). Further, the 2016-17 Maldives Demographic and Health Survey (MDHS) indicated that only half of children aged 6-23 months meet minimum standards for Infant and Young Child Feeding (IYCF) practices, including breastfeeding status, variety of food groups, and frequency of feeding during the day or night (Ministry of Health, 2018).

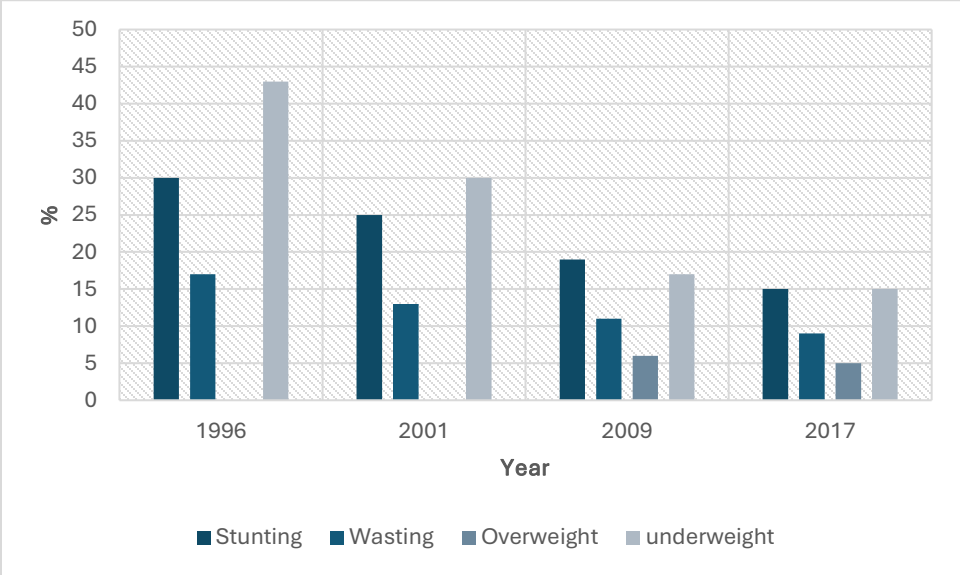

Figure 4.8 Prevalence of child malnutrition in the Maldives (Source: Ministry of Health, 2016 and 2018)

4.5 COVID-19

Given the timing of this study and the significant focus on resilience efforts in response to the COVID-19 pandemic, this section provides an overview of how the Maldives managed the crisis. It outlines the key events and policy measures taken during the pandemic,

particularly those aimed at monitoring the spread of the virus and ensuring the efficient coordination and delivery of food across the country, while doing so.

In March 2020, the World Health Organization (WHO) declared COVID-19 a global pandemic, due to the rapid spread and severity of the virus, as well as inadequate responses from many countries, urging member states to adopt containment and control measures in line with its standards and guidelines (WHO, 2020). As a nation heavily reliant on tourism, the Maldives responded quickly, recognizing the importance of early intervention such as screening protocols and the establishment of monitoring systems, as shown in Table 4.1 and Table 4.2 (Ministry of Health and Health Protection Agency, 2023). These actions were targeted not only for managing the spread of the virus, but also for maintaining economic stability and access to basic needs and resources such as food, given the country's dependence on imports and its geographically dispersed population.

Table 4.1 Timeline of Covid-19 pandemic in the Maldives (Sources: ADB 2023 and Sattar et al., 2022)

Date	Event
3 February 2020	First attempt at monitoring and controlling the spread of the virus initiated at Malé International Airport with thermal screening. Restricted entry to all passengers, regardless of nationality, except Maldivians, who had travelled to or transited through China.
5 March 2020	Under the President's guidance, the National Emergency Operations Centre (NEOC) for COVID-19 preparedness and response was established, engaging the National Disaster Management Authority and the Ministry of Health. Key ministries, such as the Ministry of Economic Development, coordinated with food importers to ensure sufficient reserves.
7 March 2020	First confirmed positive COVID-19 cases (two tourists) reported in a resort.
12 March 2020	State of Public Health Emergency declared
14 March 2020	Travel restrictions imposed between resorts and inhabited islands; guesthouse and city hotel check-ins in the Greater Malé Region suspended.
17 March 2020	Nationwide shutdown of guesthouses and city hotels
19 March 2020	Government offices, schools, and education service providers closed. Entry of tourists via safaris, yachts, and other vessels suspended.
22 March 2020	Dine-in services at restaurants and hotels in the Greater Malé Region (GMR) closed.
23 March 2020	Tourist excursions nationwide banned

25 March 2020	Resort and safari boat employees instructed to remain on site for 14 days after the last guest's departure.
27 March 2020	First Maldivian tested positive for COVID-19 in a quarantine facility. On-arrival visas for all passengers suspended, except for individuals with special government permission.
15 April 2020	First case of community transmission confirmed in Malé. A 24-hour lockdown announced in the Greater Malé Region.
16 April 2020	Nationwide travel ban and restrictions on public gatherings enforced.
28 April 2020	First community transmission outside Malé, in an outer atoll, confirmed
7 May 2020	National Taskforce on Resilience and Recovery established by the President to plan the country's recovery.
29 May 2020	Phased easing of lockdown measures in the Greater Malé Region begins
1 July 2020	NEOC phased out; its tasks transferred to the Ministry of Health. Businesses, including offices, shops, cafés, and restaurants, reopened following Health Protection Agency guidelines.
15 July 2020	Borders reopened, and 40 resorts resumed operations.
6 September 2020	Parliament passed the Public Health Emergency Act 2020.
October 2020 – March 2022	Easing of several measures continued, with careful monitoring of emerging cases and travel bans imposed as needed for new variants. No further lockdowns were implemented.
13 March 2022	State of Public Health Emergency lifted

According to the Ministry of Health and Health Protection Agency (2023), close collaboration among various stakeholders, including all relevant government ministries and agencies, state-owned enterprises, UN agencies, NGOs, and the private sector, played a critical role in the overall management of the COVID-19 pandemic. To remain coordinated, the government established a national task force, chaired by the President, that coordinated the country's response, involving representatives from across sectors, supported by a technical advisory group (See Table 4.2).

Several key policies and measures were implemented to streamline operations and maintain food delivery across the archipelago. These actions, detailed in Table 4.2, were targeted to ensure the continuity of essential services and mitigating the impacts of disrupted global supply chains. Import substitution and local production were also prioritised as part of broader socio-economic recovery efforts.

Table 4.2 Overview of key policies and measures imposed (Source: ADB 2023 and Ministry of Health and Health Protection Agency 2023).

Policies, measures and regulations	Details
Formation of a National Emergency Operation Centre (NEOC) and coordination	By mid-January 2020, the government established a technical advisory group to provide expert guidance and operationalized the NEOC. A health emergency coordination committee was activated at the national level, with COVID-19 task forces set up on all islands. The NEOC comprised members from various government ministries and agencies, focusing not only on containing the virus but also on providing social and economic support to affected individuals, while ensuring access to essential goods and services, including food
Access to essential supplies through STO and the overseeing role by the Ministry of Economic Development	STO played a pivotal role in the recovery process, ensuring the supply and monitoring of essential medicines and food staples across the archipelago. Through its Staple Agent's Programme, STO maintained constant communication with agents on all inhabited islands and implemented flexible arrangements at the harbours to guarantee the delivery of food staples as needed and quickly to the rest of the atolls and islands. The acquisition of the Maldives State Shipping Liner (MSS) in early 2020 by STO further eased logistical challenges faced in trade and import of essential items. The Ministry of Economic Development oversaw the import of key food items, maintained close contact with major traders, and ensured rapid access to information to meet food needs and facilitating swift access to delivery passes (among other measures) to ensure adequate availability and accessibility of supplies.
Import Substitution and policies to increase productivity and the formation of an Agronational Cooperation (AgroNat)	The government established AgroNat, a state-owned enterprise, in April 2020 to support the agricultural sector and promote import substitution. 17 locally growable food items were identified, and farmers were encouraged to prioritise these crops. Local councils were mandated with allocating more land for farming, and several agricultural items were exempted from import duties to boost local production.

Flexibility in Domestic Transport of Goods	Maldives Ports Limited simplified documentation procedures for supply boats to islands and atolls, easing the transport of essential food supplies. STO restructured supply chains to ensure consistent food distribution across the archipelago.
Digitization of Government Services	Key government agencies launched online service platforms to meet immediate and basic needs. The government also established the "National One-Stop Service," centralising all government services under one platform- which allowed swifter access to key information and streamlined coordination across the archipelago
Early and Safe Reopening of National Borders	As visible from Table 4.1 above, Maldives reopened borders quickly with strict health guidelines, leveraging the unique 'one-island, one-resort' concept. This setup naturally ensured social distancing and allowed for comprehensive health safeguards for visitors.
Changes to Tourism Policies to Mitigate Economic Losses	The Maldives Marketing and Public Relations Corporation launched successful online marketing campaigns. They offered longer stay packages and established a 'travel bubble' with India, which contributed significantly to tourist arrivals and helped maintain foreign currency inflows – essential to ensure importation of essentials including food.
Socio-economic Response and Recovery Support	The government introduced a $351 million COVID-19 response package, which included $124 million for social protection and $130 million for the Economic Resilience Plan. Social protection measures included income support for those who lost jobs and subsidies for electricity and water for all residents. Economic assistance programmes were introduced for self-employed individuals and businesses, with working capital loans provided through the SME Development Finance Corporation (SDFC) and the Bank of Maldives. Additionally, tax relief measures, loan moratoriums, and liquidity support for banks were offered to alleviate economic strain.

Maldives also received support and assistance from multilateral organisations and bilateral partners to help respond to the challenges of the pandemic. These include, but not limited to support from the Asian Development Bank, JICA, World Bank, Asian Infrastructure

Investment Bank, Islamic Development Bank, European Union, European Investment Bank, India, China, Japan, and USAID (ADB, 2023). Much of this support came in the form of loans, which the Maldives will eventually need to repay. This reliance on borrowing has implications for the long-term sustainability of the economy.

Although the Maldives was initially assessed by the Government of Maldives and UNDP (2020) as one of the hardest-hit countries in Asia due to the pandemic—facing severe travel disruptions, a sharp decline in tourism revenue, and significant impacts on public finances— subsequent evaluations by development partners highlighted the country's remarkable economic recovery. For example, according to ADB:

> … the Government of Maldives contained the health crisis and prevented a full-blown fiscal crisis by adopting a multisector approach that brought all the various stakeholders and concerned sectors together and managed to … maintain steady supplies of essential goods… (ADB, 2023: 2)

In particular, ADB (2023) noted that following the lifting of COVID-19 restrictions and the revival of business activities in 2021, the Maldives experienced a 15% increase in employment, with average basic wages returning to pre-pandemic levels by the first quarter of 2021. This underscores how the Maldives' recovery and response measures enabled the country to quickly rebound from the economic and social impacts of the pandemic.

4.6 Conclusion

This chapter has provided an overview of the Maldives, including its geographical, economic, demographic, political, and health and nutritional status. As with many other SIDS, its island geography characterized by small size, spatial dispersion and low-lying islands, makes the Maldives susceptible to both environmental and development challenges, including the impacts of climate change. Additionally, like many other SIDS, the Maldives relies heavily on tourism as a primary economic driver, with exports centred on fish indicative of a narrow economic base. Similarly, agricultural productivity remains constrained due to limitations in size, soil quality, and lack of arable land which results in food security almost entirely met through imports.

However, an exploration of the Maldivian history and its connections to trade, economics, and politics reveals some distinct and unique characteristics. The Maldives has established and maintained extensive global connectivity owing to its rich seafaring legacy, boat building skills and strategic positioning in the Indian Ocean. Further, as the Maldives has remained largely an independent state, apart from brief periods of external interferences, it has avoided the colonial domination typically experienced by many other SIDS during that era. Moreover, the uniform adoption of Islam across the archipelago, since its introduction, has given Maldivians a unique identity. Finally, the rapid expansion of high-end tourism and strong global trade connections have enabled economic development making the country one of the wealthiest in the South Asian region. This rapid development has resulted in both improvements and risks to population health and nutrition. Particularly, in the context of the COVID-19 pandemic, Maldives were shown to have taken proactive and strategic steps to stay coordinated across sectors, stakeholders and local islands, showing a swift recovery from the pandemic. Thus, the Maldives presents a rich and compelling SIDS case study for the examination of food system resilience.

CHAPTER 5
THE ORGANIZATION OF THE FOOD SYSTEM: EVERYDAY NORMS AND PRACTICES

This chapter presents the findings in relation to the first research question: 'How is the Maldivian food system organized in terms of international and domestic trade, production, distribution and consumption of food?' It provides a geographic and human-centred narrative of the different activities that underpin the food system in the case study islands. It is grounded in people's everyday lives and their perceptions of the food system. It illustrates the ways in which the unique characteristics of these islands have shaped and continue to shape the ways that people meet their food security needs. It points to three key findings. First, it shows that food consumption patterns are grounded in long histories of cultural and religious norms which foster a sense of community in the islands. Second, in terms of domestic trade, it illustrates the strong presence of social connections and networks which help people access a continuous flow of food products. Third, it shows that there is a diversity of foods available through imports, and this creates an adaptable food environment in the islands.

According to the literature reviewed in Chapter 2, food systems consist of three key components; food supply chains, food environments and consumer behaviours (Fanzo et al., 2021). Food supply chains include a wide range of activities related to production, processing, packaging, retailing, distributing, and consumption (Ericksen, 2008, Ingram, 2011). Food environments refers to the physical, economic, socio-cultural and policy conditions that shape access, affordability, safety and food preferences (HLPE, 2017). Consumer behaviours respond to food environments and are comprised of individual awareness and decisions on where and what foods to acquire, prepare and eat (Fanzo, 2023). These components are interlinked by the actions of a diverse range of actors, making food system interactions highly complex, and leading to a variety of societal, economic, and environmental outcomes. This chapter takes a whole systems approach to examine the organization of the Maldivian food system, focusing specifically on Felidhoo and

Magoodhoo Islands, and foregrounds the physical, economic, political, and socio-cultural contexts that shape the unique food system of the Maldives.

The chapter is organized into three sections. The first section (5.1) examines food consumption patterns of the communities, giving voice to the socio-cultural and religious norms that underpin the Maldivian food system. The second section (5.2) evaluates the dynamics of internal trade and distribution to show how people get food onto their islands. The third section (5.3) examines dynamics of international trade, the national processes involved in imports, and how these imports reach islands.

5.1 Food Consumption: Diets, preferences, and cultures

Nuanced dietary preferences and cultures were evident when people spoke of their daily meals and through observations made during shared meals in Felidhoo and Magoodhoo Islands. This is represented in Figure 5.1, a word-cloud indicating the frequency with which people refer to their everyday or favourite dishes. People often mentioned rice, fish, curries, *roshi* (a local variety of flatbread), chicken, noodles, pasta, and vegetables. Language such as 'junk,' 'processed,' 'fizzy,' and 'snacks' also frequently emerged when discussing food choices. Local dishes like *garudhiya* (fish soup) and *rihaakuru* (specialty fish paste) are staples in many households, often paired with rice or other wheat-based foods such as *roshi*. Fish and vegetable curries are also commonplace. In addition to rice, people indicated that wheat-based items such as noodles and pasta are increasingly integrated into meals. The use of packaged foods and canned vegetables is prevalent.

Figure 5.1: Word cloud showing people's most frequently consumed foods

Despite this diversity, fish remains integral to all meals. Ilyas, a 48-year-old man interviewed in Felidhoo Island, highlighted the significance of fish in the Maldivian diet, noting that the absence of tuna in a Maldivian household is perceived as a form of hunger:

> If you think of our homes, and for example if we do not have tuna in our homes for even one day, we would be in a state of hunger; our wives would say that there is no 'food' in the house. (Ilyas, Felidhoo Island)

Fish was integral to everyday meals eaten by and shared with residents of Felidhoo and Magoodhoo Island (See Figure 5.2). Fish is incorporated into curries as a staple ingredient and often served as a side dish, especially during lunch and dinner. Fish is also a staple ingredient in evening snacks, locally known as *hedhikaa*. Similarly, *mashuni* (a dish made using tuna, scraped coconut, onions, lemon and chilli) - a local favourite - is often served with *roshi* for breakfast. Tuna is a key staple in every household and serves as the cornerstone of the Maldivian diet and cuisine.

Figure 5.2: Images of everyday meals in the islands

Maldivian food is also enjoyed and shared as a community. Many historical accounts refer to the communal nature of Maldivian meals, and several residents recall this history. Some spoke of the historical *Bodu Maaloodhu Keyn*, a feast that was enjoyed in all islands. People from nearby islands would prepare food and come and enjoy this festival of food together which often lasted for three days. These feasts consisted of rice, curries made from locally sourced ingredients, grilled fish and side-dishes made of fish, bananas and deserts made of local varieties of fruit such as breadfruits and screw pines. This feast originated from a religious ceremony called *Maaloodhu*, where reciters gave out prayers and benedictions. Traditionally, these were held after naming a newborn baby, to celebrate certain religious festivals, and to bless houses and people. However, during times of food scarcity, such as during the Second World War, *Maaloodhu* was practiced less frequently and the tradition declined overtime.

However, similar food-related traditions are still enjoyed in the islands during Eid. For instance, residents of Felidhoo and Magoodhoo Islands noted that once every year, following Eid, households gather for communal tea after the Eid morning prayers. Mariya, a 57-year-old woman in Magoodhoo Island, further described food preparations and the communal nature of eating during Eid:

> During Eid we prepare an abundance of food. For instance, dishes like biryani, devilled fish, fried rice, and traditional curries seasoned with local spices are commonly made. Breakfast typically consists of roshi, *mas huni*, chicken and beef dishes in some houses. On Eid morning, there's a tradition of gathering in a

> communal area to share a meal, with everyone contributing their own dishes. Lunch is typically enjoyed within individual families. (Mariya, Magoodhoo Island)

This tradition of communal gathering for breakfast during Eid was witnessed in Magoodhoo Island (See Figure 5.3).

Figure 5.3 Communal morning tea during Eid

Preparing food for Eid and Ramadan brings families and friends together. Women in Magoodhoo Island noted that all households start making fried moringa leaves and ground spices for Ramadan a month in advance. Different households do this on different days of the month, and households help each other by sharing tasks. This was detailed by Hasna, a woman in Magoodhoo Island:

> Let's say I am preparing moringa leaves to fry today - everyone in the island would help each other out in whatever tasks I need help with. My neighbour Aisha might help me cut down the moringa leaves and separate out the leaves, which is a very tedious task and requires a lot of time. My friend Sameera might help me cut onions and prepare condiments that go into the moringa fry. This is very helpful as we

> usually prepare these things in bulk for Ramadan. I think this is a nice culture still existing on the island. (Hasna, Magoodhoo Island)

This also takes place when preparing *havaadhu* (local varieties of spices) in preparation for special occasions such as Ramadan. Large quantities are meticulously prepared, with women coming together to collectively chop ingredients, scrape coconut, and roast spices over open wood fires. This is a much-cherished display of community, anticipated by women as it provides them with the chance for extended conversations and shared laughter, which they thoroughly enjoy. This is widely practiced in islands.

In these islands, food sharing between households is central to everyday lives. For example, if a household runs out of an ingredient for cooking, they will ask to borrow some from their neighbours and, according to one woman, 'there is no shame' in this (Fathimath, Felidhoo Island). Fathimath, a woman interviewed in Felidhoo Island, discussed the historical significance of food sharing practices in her island and how such practices persist and contribute significantly to the overall dynamics of everyday food practices:

> You know back in the olden days, we wouldn't have walls around our houses. We can just easily run from one house to the other, share food, borrow ingredients and ask for help. But now our houses are built and we must go around the block to get to our neighbours – not as easy as it used to be. But even then, we still share food with people. It is our way of life. (Fathimath, Felidhoo Island)

Further, during Ramadan, people were observed sharing iftar, the meal to break the fast that they often prepared with neighbours, friends and family. A conversation with Nadwa, a 35-year-old woman in Felidhoo Island, highlighted the significance of food sharing, especially during the holy month of Ramadan. She expressed that sharing is one of the key values of Islam:

> For as long as I remember, we do this [share iftar food with friends and family]. I take whatever was prepared in my house to them and they will return the containers with something that was prepared in their house. This is a long-standing tradition and I also think sharing especially during this holy month of Ramadan is important as this month is meant to remind us to care for one another and foster a sense of togetherness. (Nadwa, Felidhoo Island)

Certain foods also hold great cultural significance. For example, in Felidhoo Island, several women spoke of a local variety of a fish curry, known as *Kandukukulhu riha*. The spice

mixture used to make this fish curry is based on Traditional Knowledge and passed down over generations and is a 'secret' recipe held dear to the hearts of the Felidhoo community. What is unique about this curry is the way the fish is wrapped in pandan leaves and infused with a unique spice mixture. Additionally, Felidhoo Islanders prepare the spice mixture using traditional tools. For example, they prefer to use a traditional *dhaa* and *foi* (grinding stone and muller/pestle – See Figure 5.4). Although a time-consuming task, it is considered important to continue with these long-standing cultural traditions. The significance of this local curry is evident as it continues to be incorporated into all special occasions, such as Friday meals, Eid lunch and weddings. Fathimath, a 38-year-old woman in Felidhoo island described the cultural significance of this curry for her community:

> Our island is famous for *Kandukukulhu riha*. We use a very traditional recipe to make the spice mixture and it is quite unique to us. We usually cook this curry a day in advance so that spices are more aromatic and the curry tastes much better… and we serve this usually on Fridays, Eid and during any special occasion in the island. (Fathimath, Felidhoo Island)

Figure 5.4: The traditional *dhaa and foi*

While Maldivian food is central to cultural practices, there is a clear shift in consumption patterns reflecting flexibility in diets (See Figure 5.5). Ibrahim, a 63-year-old man in Felidhoo Island, explained that food consumption patterns are shifting as imported foods such as processed meat are increasingly preferred over local specialty food options. He explained that although specialty soups and fish pastes accompanied by fish and locally available wheat varieties used to be central to people's diets, that this is not the case now: 'there are significant changes in eating habits now. For example, even for breakfast, now

people need to have bread, omelette, sausage, butter and jam…before we didn't even see bread' (Ibrahim, Felidhoo Island). Changing food consumption patterns were also noted by residents of Magoodhoo Island, although these were considered by some to be a positive change that gives people more food choices and options, as narrated by Reena, a woman in Magoodhoo Island:

> There are lots of changes to what and how we eat now. The timing is different, what we eat is different. Now we get more options to feed our kids- for example more tasty options like pizza, burgers, and French fries…before we would not get these. (Reena, Magoodhoo Island)

Figure 5.5: A mix of traditional food with more western varieties of food (photo by participant)

These dietary transitions are regarded by some residents as leading to the erosion of traditional synergies between socio-cultural values and ecological custodianship. Traditional staples such as taro (*Olhu Ala*), small-leafed orange mangrove (*Kadoo*), breadfruit (*Banbukeyo*), coconut palm toddy (*Ruku Raa*), screw pine (*Kashikeyo*), sea-almonds (*Kanamadhu*) and mangrove apple (*Kulhavah*) are now rarely consumed and,

when available, are considered a delicacy. These locally grown foods have in the past played a significant cultural role, as explained by an NGO representative:

> There were traditional stories and sayings named after mangrove apples – so you see there was a time in history when people spoke abundantly about mangrove apples. And this has huge cultural value. But this is also now rare. (Sharif, NGO representative)

Consumption of these traditional food staples is now less common in the Maldivian diet due to deforestation on many islands, rapid urbanization and population pressures, and loss of traditional crops such as screw-pine and breadfruit. As a result, imported varieties of these traditional staples are displacing local produce. This is concerning for locals, as detailed by Lamya a local NGO staff member, as it is leading to reduced preferences for traditional tasting foods and loss of ancestral knowledge and food cultures:

> Nowadays, most of the food we get such as taro, sweet potatoes and even screw pine are imported. The older generation can distinguish between the Maldivian species and the imported species, a skill we may lack. My parents wouldn't want to eat India taro instead of local ones. This, I believe, represents a significant cultural shift and loss of ancestral knowledge in some sense. (Lamya, NGO Representative)

People also noted that the emergence of multi-party politics and democracy in the Maldives (See Chapter 4) in recent decades is contributing to the transformation of long-standing socio-cultural traditions on these islands. For example, Ahlam, a concerned 65-year-old resident of Felidhoo Island, shared her experiences of 'diminishing' traditions around communal food consumption practices as political divisions and differences drive families apart, which she finds particularly disheartening:

> While we still do have communal meals, with the party systems, those things have started to vanish. It is very sad actually. Makes me cry. Even one of my brothers and sisters left the island because of party divisions and doesn't even speak with me anymore. It is starting to have a real impact on our long-standing food cultures and traditions too. (Ahlam, Felidhoo Island)

Alongside shifting food preferences, there have been changes in mealtimes. Mealtimes used to be fixed and people would generally eat five times a day (i.e. morning tea, *Nuvagadi*

Sai - a mid-morning snack -, lunch, evening tea, dinner). This is illustrated by a quote from Hassan, a council representative of Felidhoo Island:

> I think mealtimes have now changed. But generally, people would have five meals per day. Breakfast, *nuva gadi sai* [a common mid-morning snack], lunch, evening tea and dinner. You can see tea ready on tables by 7am, at 10am you will see *nuva gadi* meal, lunch will be ready, evening tea will be ready right after *asr* [afternoon prayer] time and dinner will be ready right after *isha* [night prayer]. (Hassan, Council Representative, Felidhoo Island)

Interestingly, these mealtimes are linked to Muslim prayer times. Muslims pray five times a day; *Fajr* (dawn), *Dhur* (noon), *Asr* (Afternoon), *Maghrib* (evening) and *Isha* (nightfall). Typically, meals were associated with each of these prayer times, with men eating after congregational prayers at the mosque, while women remained at home engaged in meal preparation and often encouraged to pray at home.

However, this connection between mealtimes and prayer times is shifting, driven by busy lifestyles and women working full-time. People now tend to have fewer meals. In Felidhoo Island, many residents noted that they now have two meals per day (breakfast and dinner) instead of the more traditional five meals per day, mainly due to changes in lifestyle and the time-pressures of full-time work. Further, with more cafés and restaurants opening on the islands, people now tend to eat outside their homes. Hassan, a council representative of Felidhoo Island, explained how people's dietary choices and patterns are changing because they increasingly eat meals prepared outside their homes:

> We also see people eating out more often now. Before, only very few people will go out to eat in these islands, used to be something you will only do in Malé. Now you will see grandmothers, fathers and entire families going out for evening tea also. I think it is a good sign as people will get used to eating different things. That way people are more open to trying new things and are not impacted even during an instance where they are not able to get their usual food. (Hassan, Council Representative, Felidhoo Island)

These changes around food choices are also shifting gender norms. Residents in both islands explained that women typically play key roles in decisions on what to cook, what to buy and how to prepare food, while men pay for the food. Yet there are emerging shifts in these gender divisions largely because more women are now employed and earning

money. For example, in the case of Felidhoo Island, which is also the atoll capital, most men and women are employed in the administrative sector. In such households, men and women contribute income to buy food items. Some women also noted a shift in gender roles in the agriculture and fisheries sector, where women are increasingly taking on roles that were traditionally performed by men. This is described as a significant and positive change by many women. I sat with Zeeniya, a 65-year-old woman in Felidhoo Island, while she deboned a fish for a special Friday meal (See Figure 5.6) and she shared her thoughts on shifting gender dynamics: 'Now we women do everything, even scaling and de-boning a fish. In the olden days we would wait for the men to scale the fish, de-bone it for us before we can cook with them. But now whatever men can do, we do it better' (Zeeniya, Felidhoo Island).

Figure 5.6: A woman, deboning a fish in preparation for Friday meal

Seasonal shifts in food consumption are less evident in the Maldives, due to the consistent availability of imported food in the islands and less reliance on local production. However, shifts in food consumption are apparent due to other reasons that are social, cultural and religious. For example, Ramadan is a significant month for Muslims as they observe fasting from dawn till dusk. Hence, what people consume and the quantity and the timings of food consumption change dramatically during this time. Ramadan, although a month of spiritual

devotion and societal connection, is also a month of culinary indulgence. Ismail, a man interviewed in Felidhoo Island, explained how his family prepares for Ramadan every year by bulk-buying large quantities of key food ingredients in preparation for this holy month:

> We usually bulk buy for Ramadan from Malé. We would bring all key ingredients such as eggs, onions, condensed milk, canned fruits to make juice as well as canned pineapple. Usually we spend MVR 10,000 – 12,000 [approximately USD 648 – 778] to stockpile these food items for Ramadan, as we make more food during this month. (Ismail, Felidhoo Island)

Ramadan is also described by local shop owners and food traders as a time when there is higher than normal demand for food as Maldivians prepare special meals for *iftar* (breaking fast) to be shared among family, friends and neighbours. Hence, increased varieties (as people try new recipes and make food that are not otherwise made year-round) and quantities of food are imported during this time of the year. Port officials explained that every year they receive a huge influx of food containers for the Ramadan period:

> We get a lot more food containers during Ramadan every year. We always prioritize clearing food items as fast as we could during Ramadan for this reason. We try and get rid of all other items in our warehouse for Ramadan just so that we can off-load, store and clear food items as soon as possible. (Shamin, Port Official)

This section has shown that food consumption in Magoodhoo and Felidhoo Islands is tied to socio-cultural and religious values, as exemplified through people's accounts of their everyday food practices, food sharing ethos, and how they prepare for special occasions such as Eid and Ramadan. Staples like rice, fish, curries, *roshi*, and traditional favourites such as *garudhiya* and *rihaakuru* remain significant in people's everyday food practices, along with the integration of more diverse and globally influenced food products. Although socio-cultural norms and traditional food remain central, food consumption patterns are changing, evident in the increasing varieties of foods in everyday meals and changing mealtimes.

5.2 Local Trade and Production: How do people get food?

> I buy food from the *rashu fihaara* [island shop]. We get most things we need from the shops. Everything in the shops come from Malé… sometimes you can find local produce too in the shops…but you know all food we consume are mostly imported. We hardly produce anything. (Afra, Felidhoo Island)

In the above account, Afra, a 55-year-old woman in Felidhoo, shared how she gets her groceries for daily meals. For everyday meals, she buys food staples like rice, flour, sugar, onions, potatoes, eggs, frozen meat such as chicken, and canned tuna from the local shops (a picture of a local shop in Felidhoo Island is shown in Figure 5.7). Some residents also travel to Malé on speed boat ferries to get their weekly or monthly groceries in bulk, which they consider a cheaper option. It is also common for people to use their social networks and ties in Malé to help purchase their groceries and load them onto the supply boats or ferries. Ilham, a 57-year-old woman in Magoodhoo Island, depends on her half-sister who lives in Malé to help her purchase her weekly groceries:

> I mostly ask Hafeesa, my half-sister who moved to Malé long time back. I can viber [instant messaging app widely used in the Maldives] her the list of food I need for the week and she will buy from cheap shops in Malé and put it into the ferry that leaves from Malé three times every week. I then just transfer her the money. My husband will go and pick them up from the ferry once it arrives here. (Ilham, Magoodhoo Island)

Figure 5.7: A local shop that sells food and other essentials

Ilham explained that she prefers to buy food this way as it is cheaper and better quality. She believes that food in the island is more expensive due to added transportation costs, and she often finds the quality of perishable food available in the island diminished due to poor storage infrastructure in supply boats and local shops in the island (See Chapter 6). By relying on a trusted relative, Ilham is assured that she gets better quality food at a more

reasonable price. Similarly, local shop owners explained how they place orders with wholesalers in Malé. For example, Mausoom, a 50-year-old shop owner has a friend in Malé who owns a wholesale company; he buys bulk stock on credit from his friend and repays in instalments, which has over the years helped his business, in Felidhoo Island to survive:

> I usually bring in supplies from Malé. I have a friend who owns a wholesale food company. Even recently I bought MVR 10,000 worth of items from this shop owned by my friend and he even gives for credit. Then I pay in instalments and finish off the payment. He gives me credit because he can trust me that I will make the payments. This is only possible because I know him and we are friends. (Mausoom, shop owner, Felidhoo Island)

Social ties and family connections also play an important role in people's decisions about where to buy their food from. People have their usual or favourite shops. Ali, a shop owner in Felidhoo Island mentioned that he considers three to four Felidhoo families as 'regular customers':

> Actually, most people in this island will not buy from me because they have better connections with the owner of the shop on the other side of the island. I usually have three to four families nearby this shop that buy items from me. (Ali, shop owner, Felidhoo Island)

Similar accounts showing the significance of social ties and connections were evident in Magoodhoo Island. For example, Naufal, a shop owner in Magoodhoo Island shared his observations in the island, explaining that people know the shop owners and often feel reluctant to check prices and leave without buying the item from the shops, reluctant that it may offend their friends and relatives who own those shops:

> You see here [pointing to the shop opposite of his], we have two shops on the same road, close to each other. You will see MVR 10 to MVR 15 [equivalent to roughly USD 1] difference in prices of some food items. The difference might not be that big. As most people in the island know each other and are either friends or related, people feel reluctant to inquire prices in one shop and then go to the other to make a purchase. Instead, they tend to buy from the first shop, even if it means paying a higher price. This shows the tight-knit community dynamics that shapes food purchasing in this island. (Naufal, shop owner, Magoodhoo Island)

While social ties and connections are important, shop owners typically place orders with wholesalers and retailers in Malé and food products are brought to the island by regular supply boats and transported via buggies to their homes or shops (See Figure 5.8). Sometimes, food items are also brought in through regular high-speed ferries that operate between Malé and the islands. In Magoodhoo Island, food supplies arrive via an atoll supply boat once every week, supplemented by regular high-speed ferries that operate between Magoodhoo and Malé three times every week. Similarly, Felidhoo Island receives bulk food items through their regular supply boat which arrives twice weekly, along with high-speed ferries commuting between Felidhoo and Malé twice daily. The frequency within which they come to the island depends on the duration of the route, the weather, and how quickly they get access to the North harbour in Malé (See Section 5.3) and can load and off-load items. Due to the small size of shops and lack of land for large food warehouses, storage facilities are limited, and shop owners can only place small but regular orders. As a result, the variety and quantity of food that is available to buy locally within the islands is somewhat limited to basics. Mariya, a 57-year-old woman in Magoodhoo Island, described the limited variety of fruits and vegetables available noting that they typically last only two to three days after the weekly food shipments:

> Common and very basic food ingredients are available, but what is difficult to get is a diversity of options. I especially notice these fruits and vegetables. We usually get apples and oranges as fruit option in the islands and carrots and cabbage would be the usual vegetable options. Even when available, these would usually go out of stock on the day the shipments come through. (Mariya, Magoodhoo Island)

Figure 5.8: Collecting and transporting weekly food supplies

To supplement the limited availability of fresh fruits and vegetables, people also grow food in their backyards or in pots in front of their houses, if they have space. However, subsistence gardening is somewhat limited. People mostly grow local varieties of salad leaves (*Kopee Faiy*), chillies, lemon, curry leaves, pandan leaves, moringa leaves, and bilimbi. These are common local ingredients in everyday meals. Figure 5.9 shows the different ways in which residents of Felidhoo and Magoodhoo islands use limited space they have to grow basic food produce.

In addition to these everyday ingredients, it is common to see pumpkin, banana, breadfruit, papaya, butternut, tomatoes, water-apple, coconut, bitter gourd, cucumber, lime, cassava, brinjal, passion fruit, and Maldivian varieties of green collards in these islands. Mango is particularly common in Felidhoo Island while banana (*Fai Keyo*) and a special type of coconut (*Kurumba*) are grown in Magoodhoo Island. Since 2008, with the establishment of the Cooperative Society in Magoodhoo Island, islanders have become more interested in local food production. According to Naeem, a member of the Cooperative Society, Magoodhoo has an allocation of 25,000 square feet of land for farming, including one poultry farm and three greenhouses. Further, according to the local council 90-95% of residents of Magoodhoo Island currently have access to land that can be used for farming (Naeema, Council Representative, Magoodhoo Island). Magoodhoo is now self-sufficient in crops such as bananas, coconuts, watermelon and butternut. So, subsistence farming

plays a role in the food production landscape and the livelihoods of people in Magoodhoo Island.

Figure 5.9: Subsistence production in Felidhoo and Magoodhoo Island

While islanders engage in subsistence backyard farming, they also sell surplus to local shops, nearby resorts and guesthouses, or to Malé market or retail shops. Aminath, a 35-year-old farmer interviewed in Felidhoo Island, described how she depends on a family member who resides in Malé to sell her weekly supplies of surplus fruits and vegetables:

> We send surplus produce to sell to Malé in the regular atoll ferries. We have a family member in Malé who will then receive the items once the boat arrives at the North Harbour and he will sell it off at the local market or even to corner shops in Malé and transfer the money to us. (Aminath, Farmer, Felidhoo Island)

Sometimes people also process surplus ingredients such as bilimbi to make pickles (*bilimagu asaara*), a local favourite accompaniment in everyday meals. Similarly, during the peak season, breadfruit is sliced thinly and deep fried (*Theluli Banbukeyo)*, another

local favourite widely enjoyed as a snack. Nasra, a 45-year-old woman who enjoys farming in Magoodhoo Island showed her backyard garden and shared how she makes pickles out of mangoes and bilimbi for her family. Additionally, during peak season, she sells pickles to other islanders through local shops:

> I always get a lot of bilimbi, as you can see [pointing to the bilimbi tree]. My family loves pickles made from this, so I usually prepare and store them, and they last for quite a while. I also have a mango tree and during the peak season I sometimes sell mango and bilimbi to others on the island. Since we own a local shop, I typically take my pickles there to sell. (Nasra, farmer, Magoodhoo Island)

It is also common for islanders to share surplus produce such as pandan leaves, chillies and curry leaves between households. Abdulla, a shop-owner and a Felidhoo resident not only shares surplus produce with friends and family in Felidhoo Island but also sends locally produced food to Malé to share with his extended family and friends:

> For us, in the past six years, we never had to buy a chilli from a shop. By 'us' I mean, all of our relatives in the island, all of our friends in the island. All of our relatives and friends even living in Malé. We grew so much so we had so much available to share with anyone and everyone. I did not sell any of it, because I take pride in being able to share this with my community. (Abdulla, Shop owner, Felidhoo Island)

Such robust food-sharing cultures was frequently observed in the islands. It was a common sight to see people visiting their neighbours or relatives to ask for essential ingredients such as chillies, curry leaves and pandan leaves, which are seldom sold when asked for. Even when offered payment, people found pride and pleasure in simply sharing these. When asked about this practice, Hafsa, a woman in Felidhoo Island remarked; 'We are all like family here, we care for each other. You don't take money from family.'

In addition to getting imported food from local shops or directly from Malé and through backyard produce, people also procure fish - a staple in their diets - in different ways. In these islands, very few people are engaged in fishing as a main form of livelihood activity, however fish and fishing remain significant to their everyday lives. It is common to see men of all ages heading out in small boats (*dingies*) at sunset, after work, to enjoy a night of recreational fishing. The fish they catch are usually consumed by men and their families, or when in abundance are sold to local restaurants in the island, guesthouses or nearby

resorts. Households without boats or in which men are not interested in fishing, depend on shop-bought frozen fish, smoked or canned tuna. Although there are three tuna fishing boats in Magoodhoo Island, fish is not usually available from these vessels, as the fishers prefer to sell their tuna to fish exporting companies or to the Malé market where they can receive higher prices. As a result, residents of Magoodhoo and Felidhoo Island depend on buying fresh fish from weekly fishing vessels that stop by from neighbouring islands. Mariya, a woman interviewed in Magoodhoo Island explained:

> I am making some *garudhiya* today using fresh yellow-fin tuna I just got from the fishing vessel that just came by the island. I also got some extra and froze them, the price was good today. (Mariya, Magoodhoo Island)

People said they are disappointed if they miss this weekly fishing vessel as it means they must wait for the following week to get fresh fish, or fresh *garudhiya and baiy (*specialty fish soup and rice) a local favourite. People in Felidhoo Island also said that when fish is sold at a cheaper price from these vessels, they bulk buy as they prefer to make their own *rihaakuru* (fish paste) and preserve it, another local favourite.

Although fishing is not carried out at a large scale, fishing remains integral to everyday life in the islands and provides a sense of security for residents. For example, a 76-year-old man interviewed in Felidhoo Island recalled his childhood on the island, stating that even in tough times during World War II being surrounded by the ocean and having ocean resources gave him a sense of security:

> I remember the *Bodu Thadhu* [The Great Famine] during World War II… I was just a kid back then, it was quite tough to get food. But even then we were lucky that we were surrounded by the ocean and we had the chance to go fishing. (Ahsan, Felidhoo Island)

Through such narratives, it becomes evident that being surrounded by the ocean is an advantage for islanders and fishing will always remain an option for people in times of scarcity.

In exploring the domestic food trade and production practices in these islands, it is apparent that people get food in three main ways; imported food that is available in the local shops or acquired through connections with family and friends in Malé; food that is produced and

shared locally in the islands; and fish that is either caught or bought from shops or from fishing vessels that stop by their islands from neighbouring islands. In these islands, social networks and connections are essential to facilitate the flow of food from one place to another.

5.3 Global to National Trade

Given the prominence of imported food in the case study islands, this section explores the global-national scale dynamics of getting food into the capital island Malé through global markets and to these local islands via sea. Narratives in this section are based on conversations held with food import and trade actors in the Maldives, including state and private food traders and wholesalers.

Food traders and the Maldives Customs Services identified key countries from which food is imported. The top 10 food import source countries (see Figure 5.10) are: India, Malaysia, Sri Lanka, United Arab Emirates (UAE), Singapore, Brazil, Germany, Netherlands, Thailand and China.

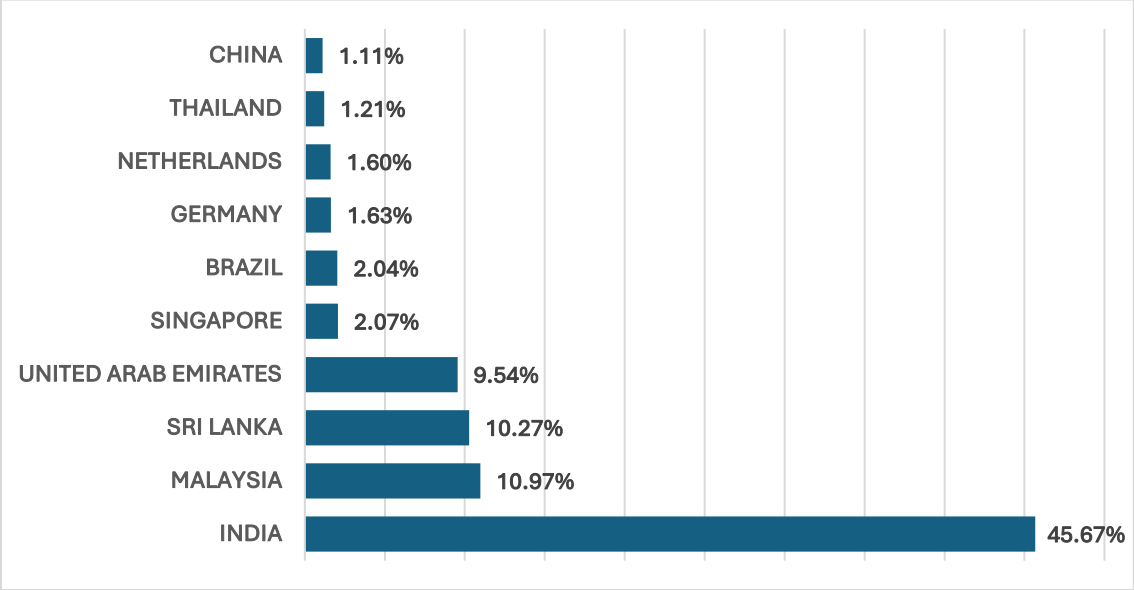

Figure 5.10: Top 10 food importing countries in the Maldives (source: Maldives Customs Services, 2021)

According to food traders, food imports from India are high because of its close proximity to the Maldives allowing for the import of perishables and staples with a short expiry

period. Food traders can bring staple foods from India as loose cargo (not in containers, which allows better air circulation) at a higher frequency, ensuring a regular flow of food. Loose cargo shipments are advantageous as they bring a much higher quantity of food items per trip in a more cost-effective manner, as explained by a port official:

> You see here Niumath boat [See Figure 5.11]. Typically, perishable goods like eggs, onions and potatoes are transported in smaller boats like this one from India, rather than containerized ships. This method allows for better circulation, lower costs, and the ability to transport larger quantities in a single trip. This ship originated from Tuticorin, India. Typically, these boats make four trips per month. It is likely that next week, this ship will be back again with more shipments. Generally, a voyage from India to Maldives takes 3-4 days. (Shamin, Port Official)

Figure 5.11: Loose cargo shipments from India (right); 'Niumath' ship from India which carries perishable goods (left)

Furthermore, Shamin added that during non-monsoon seasons, shipments from India are even more frequent as they can send shipments in wooden boats, locally known as '*kappalhi boat'*:

> We call these boats *Kappalhi boat*. These boats are called names like *Maariya Jaana*, reflecting their traditional and somewhat antiquated nature. These boats typically operate from December until May or June, after which they will stop until the monsoon period passes as they cannot withstand strong currents and rough seas. These boats have the capacity to bring even more goods, mixed, including food and in significant quantities. (Shamin, Port Official)

Although a high proportion of food imports come from India, traders diversify source countries as additional security in the case of logistical or trade interruption. Food

statisticians at the Maldives Customs Services and the 2021 food import statistics, confirm the efforts of traders to diversify food source countries. In 2021, food was imported to the Maldives from 69 countries (see Figure 5.12). So, although there is a large concentration of food sources from India, there are diverse food import source countries across Asia, Europe and even South America. Having diversity in food imports and source countries is regarded by traders as key to allowing them to swiftly adapt to volatile food trade dynamics by switching between suppliers and source countries if their usual supply becomes expensive or challenging to obtain.

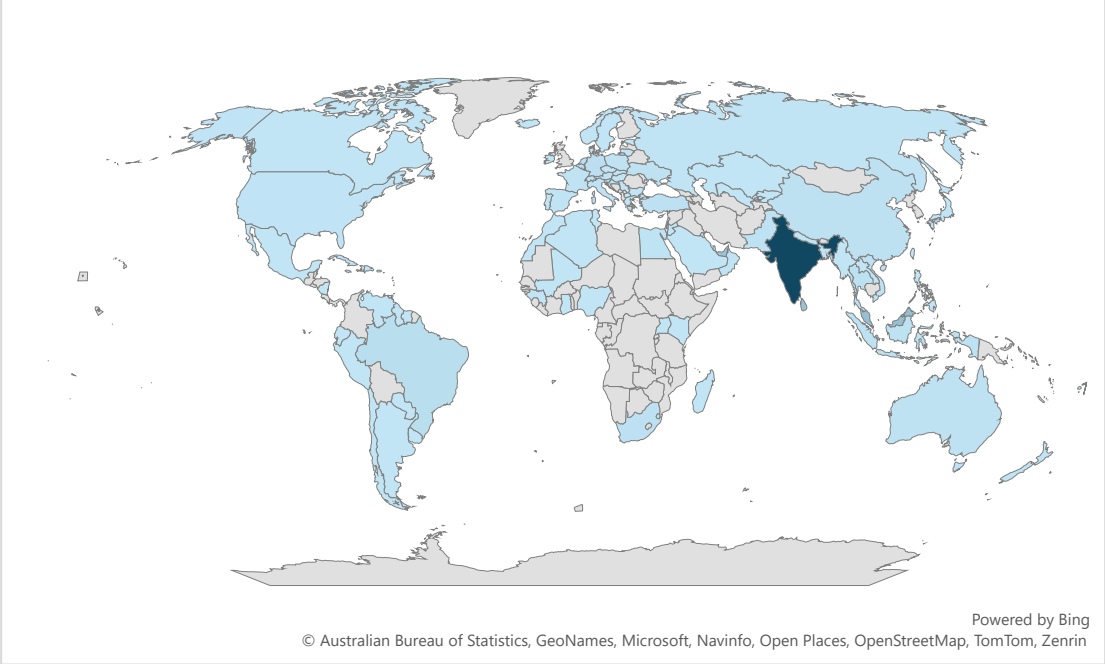

Figure 5.12: Food import countries in the Maldives (Based on 2021 Maldives Customs Data)

A conversation with a local historian suggested that high dependency on food trade and diversity in food source countries in the Maldives is rooted in its seafaring history (see Chapter 4). He contended that even in ancient times, food security was a primary motive for trade relations:

> This seafaring history is important, because Maldivians have always been masters in navigation which has helped them navigate strong winds and currents and travel long distances, reaching the East and West. This is known in the written history of the Maldives. And this indicates that due to limited local resources beyond fish,

> seafaring was closely tied to ensuring food security for the Maldivian people. (Bassam, Historian)

As detailed in Chapter 4, the Maldives has long-held relationships with its geographically closest allies, India and Sri Lanka (previously Ceylon). These connections remain crucial to the Maldives' food security. For example, Aman - a food trader - stated that 90% of food items that come into the Maldives transit via Sri Lanka. At the same time, India was one of the first nations to recognize the Maldives as a close ally following its independence in 1965, subsequently establishing strong diplomatic relations (HCI, 2022). A notable milestone in this relationship was the signing of a trade agreement in 1981, encompassing the export of essential commodities (HCI, 2022). As per this trade agreement, India provides key food ingredients - such as rice, sugar, flour, dal, onion, potato and eggs - on favourable terms to the Maldives. According to a senior government official from the Ministry of Economic Development, annual bilateral exchanges of letters between the two governments reinforces this trade agreement, and a very generous export quota is allocated every year exclusively to the Maldives. This agreement ensures a consistent supply of food staples and other food essentials, which the official described as 'more than generous and required to meet the needs of the population' (Shamil, Ministry of Economic Development). As a result, diplomatic ties with India have remained crucial to the Maldives' foreign policy, contributing both to economic and national security. The Maldives, under its former leadership of Ibrahim Mohamed Solih (2018-2023), adopted an 'India First Policy,' signifying a deliberate prioritization of its relationship with India, to ensure a reliable food trade, amongst other motives. The significance of Maldives-India relations in the contemporary food system was widely noted in conversations with food traders. For example, Haris, a food importer shared their long-standing relationship with Indian food exporting companies and how these connections allow them to bring frequent supplies from India, which has become like 'family':

> We started importing food staples and perishables from India in 1989 or 1999. For the longest time, we have resorted to bringing in staples from just India…. The company we work with in India is now like family to us. We are able to get supplies from them at least two or three times a week and they always help us out as needed. (Haris, Food Trader)

However, the Maldives relationships and connections globally do not end with India and Sri Lanka. According to an official from the Ministry of Trade and Economic Development, its history of seafaring and trade has enabled diversified trade connections and fostered a resilient national economy. This has been the cornerstone of the Maldives Foreign Policy:

> You know we Maldivians are quite unique in the sense that we have always had great connections globally. We always continue to diversify our trade relations globally… this is important to the resilience of the nation. (Shamil, Ministry of Economic Development)

Shamil also identified income from tourism and fish exports as important for food security in the Maldives, as these economic activities provide a consistent flow of foreign income into the country; this economic base allows the government to ensure a consistent and affordable flow of imported food staples such as flour, sugar and rice into the country through food subsidies. Shamil stated:

> We are fortunate to have a thriving tourism sector and at the same time our potential to export fish to Europe and a growing global market is critical to any conversation on food security. We get revenue through tourism and fishing, and we use that revenue to import food. It is complex and interconnected, where the success of one sector impacts the other. (Shamil, Ministry of Economic Development)

Many traders and importers referred to the significance of the Maldives State Trading Organization (STO) in both the import and domestic trade of food. As detailed in Chapter 4, STO is a critical actor in the Maldives food system dynamics, responsible for the import and distribution of staple foods of rice, sugar and flour on behalf of the government. The STO retails these food staples at a controlled and affordable price, by heavily subsidizing them. According to traders, having a state owned company that imports and distributes staples plays an important role in stabilising markets at times of disruptions and ensuring equal access to key food ingredients across the archipelago (further details in Chapter 7).

In addition to diversity in food source countries, there are also attempts to diversify varieties and brands of imported food. The rapidly expanding tourism sector places growing demands given the range of food preferences and tastes of tourists. Many food traders now import high-end brands and food varieties from European markets to cater for the tourism sector and these foods have begun to appear in local grocery stores. Aman, a

food importer and trader, stated that diversification and flexibility is necessary to meet growing and shifting demands:

> We always ask our suppliers to not condition us with a minimum number of quantities to place food orders. We try and tell our suppliers that we have only around 300,000 people in our country, so cannot take 200 cases of one brand of food… From my experience if you want to enter the Maldivian market, you will have to attend with a huge variety of products as although small populations, there is diversity in food preferences and tastes. (Aman, Food Trader)

Food traders explained that they make decisions on where to import food from based on where raw materials are produced or grown. This reduces costs while meeting the demand for key food items. For example, vegetable oil is brought from Malaysia because it is one of the largest and cheapest producers of palm oil (Aman, Food Trader). One of the oldest rice importers, Haris, described the process of procuring Taj Mahal brand basmati rice from India:

> Taj Mahal basmati rice is a key brand of rice we import from India. The grain for this brand is sourced from Indian farmers, and they are milled in mills owned by the Taj Mahal company and the rice is then packed for us. Taj Mahal packaging and distribution hub is in New Delhi which then leaves India through a port in Gujarat. It then transits in a port in Colombo before it arrives at the Malé port. (Haris, Food Trader)

Direct trade with manufacturers allows traders to avoid losses associated with use of middlemen. However, with food products that do not have high demand, traders are obliged to work with a middleman, usually based in UAE, South Africa or Malaysia, who creates a mixed container of goods for them. Dubai in particular plays a significant role in supplying these mixed containers to the Maldives, due to their strategic location connecting Europe to Asia which allows UAE to accumulate goods from all over the world and redistribute them (Haris, Food Trader).

The price of food imports is closely linked to the cost of shipping, a key factor dictating the food trade and import landscape of the Maldives. This is because the majority of food items reach the Maldives via sea-freight. In extremely rare instances, food comes via air; however, this is mostly to cater to the luxury tourism market or to address a sudden gap in the food market due to a major unforeseen disruption in a key food source country, such as

India, due to environmental or other factors. Shipping liners in the Maldives are dominated by Lily (a private company), TTS Group (a privately owned shipping and logistics group in the Maldives) and the Maldives State Shipping (MSS) which is a national shipping liner recently acquired by the STO. These companies operate as agents which are used by traders to place freight bookings with the shipping liners or companies. TTS for example acts as the agent for CMA/CGA shipping liners while Lily operates their own shipping liner called Lily liner. Traders shared concerns over a highly monopolized shipping environment in the Maldives, stating that many agents are Sri Lanka-based and control over shipping prices lies in the hands of a few expatriate shipping liners that are majority owned and operated by Sri Lankans in the Maldives. However, the recently established State Shipping Liner is regarded by food traders as beneficial in terms of stabilizing the cost of shipping and providing flexibility to shipments. This was considered a key factor in overcoming shipping challenges associated with the COVID-19 pandemic (See Chapter 7).

Traders also spoke of the complex ways in which geography shapes shipping routes, frequency and costs. For shipments coming from countries in close proximity to the Maldives, such as India, shipments are frequent and usually take 56-72 hours to reach the Maldives depending on the weather. Traders shared stories where some shipments were returned to India halfway through the journey because the sea was too rough:

> I remember vividly…last month where a ship from India had to turn back halfway through as the sea got too rough. This is not very common but happens every now and then during the monsoon seasons, as they cannot travel in midst of a cyclone. Sometimes they even delay loading goods, until the weather clears. (Haris, Food Trader)

While weather plays a significant role in determining shipping, the source country also determines the number of transit points, changes and the duration of the journey to the Maldives. For example, one food trader (Aman, Food Trader), shared his knowledge of importing Hagen Daz ice-cream directly from France. According to him, once the ice-cream is loaded onto their chosen shipping liner from France, it transits through several ports, including Sri Lanka before it reaches the Maldives, and this journey takes around three months. This is similar to all food items brought from European countries.

When placing orders, traders also adopt a pre-emptive approach. Considering the time it takes for food containers to reach the Maldives from various source countries, traders plan ahead to ensure steady supply. This pre-emptive approach helps mitigate the impact of delays or disruptions caused by factors like transportation and logistical challenges (Sameeha, STO). They also plan food orders in a way that ensure effective use of limited warehouse space and storage capacities (see Chapter 6). One food trader explained that they manage shipments and optimize warehouse space by factoring in the time it takes for items to be sold in the market. This ensures quick turnover and frees up warehouse space quickly:

> We do not store much; we always try to sell them off as quickly as possible. Let's say the shipment left India on Thursday- it will arrive at Malé Port on Saturday. We will get the cargo cleared by Sunday or Monday and by Wednesday everything will be sold off. That is the case for us always. (Haris, Food Trader)

Food through these diverse international markets arrives through three seaports: Malé Port (main port), Kulhudhufushi Port (North) and Addu Port (South). The ports are operated by the Maldives Ports Limited (MPL) and several government bodies are involved in regulating the ports to process imports (See Chapter 4). Interviews with port officials from MPL and the Maldives Food and Drug Authority (MFDA) illustrated the processes in place to regulate food imports.

Figure 5.13: Unloading cargo at Malé Port

MPL as the regulator of all seaports in the country receives manifests for shipments that are to arrive at Maldivian ports and this allows port officials to plan for and organize ships for clearing process a day in advance. Shipping agents input details of shipments that are expected to arrive at the ports via an online portal that is accessible to regulatory bodies that oversee imports (Maldives Customs Services, Maldives Ports Limited and MFDA). These documents allow port officials to understand the types of food that each shipment contains and the temperatures at which this food should have been maintained along the journey.

Despite regulatory measures to monitor the health and safety of imported food there are concerns over whether these are adequate and effective. For example, according to food import regulatory officials, inspection of food imports is largely based on document checks (i.e., Health Certificate, Veterinary Health Certificate, Halal Certificate, and Certificate of Origin). Minimal physical inspections are carried out, and only for certain foods classed as risky; these include temperature checks and visual observations. According to traders, the current regulations are easy to follow and ensure food imports are swiftly cleared for retail. A follow-up conversation with an official, who oversees the safety of food imported, clarified that for a country that is heavily dependent on food imports, having excessively stringent laws and regulations would be impractical and would threaten national food security. However, he indicated that some regulations are weak and need strengthening from a health and nutrition perspective:

> Looking at it through the lens of food security, anything that is not safe isn't secure either. However, it's essential for food to also be affordable. So, from this angle, in the context of the Maldives, there could be challenges in affording food if too stringent control and regulatory measures are implemented, which might pose a bigger concern. (Migdad, Maldives Food and Drug Authority)

Once these health and safety regulations are carried out by Port Health Officers, food imports are cleared for off-loading. Arrangements are in place to expedite the clearing process for certain food items. According to port officials, perishable food items must be cleared within 48 hours and stored in a warehouse within the premises of MPL until transported to shops or warehouses of importers (Shamin, Port Official). However,

according to Shamin, a port official who supervises cargo clearances at the Malé port, the off-loading process is severely constrained due to limited space at the port, where only four large vessels can be cleared at any given time:

> We will be able to offload four ships at any given time, while we get around 30 to 40 ships daily. So, you can imagine the hassle here. This is a highly congested area and this makes management of the port extremely difficult at times. (Shamin, Port official)

Given the limited space, some vessels are forced to stay further out in the lagoon, and smaller tugboats are sent out with barges to off-load containers and bring them to the port harbour. This is a time-consuming and labour-intensive process as explained by a port official:

> This is a very challenging and time-consuming task though, but because we do not have enough space here, we have to do this. I understand that this is a very old-fashioned way of doing this but this is how it is for now. (Shamin, Port Official)

Once the clearing process is completed, Malé is the main trading centre from where all food imports and locally produced food are redistributed. The STO Staples Agents Programme, established in 2018, allocates agents to each inhabited collected and island to decentralize the distribution of staples. The purpose of decentralizing staple distribution came with the rationale of ensuring a continuous supply of staples across the archipelago, irrespective of the geographic fragmentation of the islands. These agents keep stock of staples in their respective islands and place orders with STO. Such initiatives play a foundational role in mediating shocks to the food system, as further elaborated in Chapter 7.

The Malé North Harbour is the hub through which food imports are re-distributed to the rest of the islands and the locally produced food that comes from the rest of the islands is distributed to Malé markets and retail shops. This harbour, established in 2010 to offload sea vessels carrying goods, and the surrounding area is always heavily congested (See Figure 5.14). The North Harbour operates on a first come first serve basis, and all supply boats coming from other islands must register. Once the boat arrives, they offload people and locally produced fruits and vegetables (brought to be traded in the local markets) free of charge for one hour and these must be collected within one hour. Once collected, most

local produce is taken to the Malé Local Market (See Figure 5.15), not too far from the North Harbour, or to nearby wholesale and retail shops. For supply boats to re-load from Malé with orders placed with wholesalers and traders, the vessels wait in the lagoon or in the harbour of a nearby island until their queue number is called. Once the supply boat secures a space at the harbour, orders placed with private traders and wholesalers are delivered to the North Harbour through transport vessels owned by traders or friends and family who live in Malé. Although complex, this mechanism of food loading/off-loading works for islanders and ensures food supplies reach all islands.

Figure 5.14: Malé North Harbour

Figure 5.15: The Malé Local Market where locals trade agricultural produce

In conversations with food traders, and residents of Magoodhoo and Felidhoo Islands they expressed concern that local food distribution practices are largely controlled by Bangladeshi migrants. Their perceived control over the food system in the Maldives has raised concerns about price hikes for locally produced food sold in the markets and reduced pathways for younger people and women to participate in food-producing sectors. These tensions are discussed in detail in Chapter 6.

In examining the role of global trade in the local food system in the islands, it becomes evident that the Maldives is strongly connected to a diverse international market, which ensures consistent and diverse food imports. There are complexities in unloading food imports and the food distribution process following arrival on Maldivian shores. Yet people navigate these food trade networks and processes every day, connecting globally imported food that arrive in Malé to islands like Felidhoo and Magoodhoo.

5.4 Conclusion

This chapter foregrounds place-based norms and practices of food system dynamics, actors involved, opportunities, as well the complexities people navigate to meet their food needs. A wide range of actors are involved in the Maldivian food system; international and bilateral trade partners, private and public food traders (wholesalers and retailers), shipping companies (both global and local), State Owned Trading Cooperations and other state/government organizations, local councils, women's development cooperations, local supply boats, private transportation companies, farmers, fisherman, tourists, local shop owners and migrant workers. While they all have important roles within the food system, this chapter has demonstrated how unique island characteristics in the Maldives, including its geography, social, cultural, political, historical and economic norms, shape everyday lives and food systems.

Despite access to new and diverse food markets, traditional food cultures persist and locals continue to favour popular local dishes. Food practices also have value at the community level, and food traditions are evident during religious and cultural events such as Eid and Ramadan where people come together for communal meals or collectively prepare dishes. The strong tradition of food sharing within and between households is widely sustained. Island scholars highlight the significance of sea-boundedness in safeguarding the unique

cultural heritage of island populations, preserving a strong island identity (Hay, 2006), and creating a tight network of community and kinship (Foley et al., 2023, Donaldson, 2018). For example, a study by Nakamura and Kanemasu (2022) in Fiji showed that communities share a strong identity, communal and culture of sharing resources. The bounded geography of islands may contribute to safeguarding socio-cultural norms, including food norms. In the Maldives, religion – i.e. Islam - also plays a role in reinforcing the culture of sharing and kinship (Kassam and Robinson, 2014), with food practices closely intertwined with religious occasions. While food-related social and cultural norms are evident in small island communities including the Maldives, islanders are not unchanging and 'backward' people, a view that reproduces earlier colonial viewpoints of islands (as critiqued by Kothari and Wilkinson (2011)). In the Maldives, people spoke of shifts in consumption patterns, noting that their food systems and food consumption patterns are changing, shifting, and adapting to new markets and expanding tourism. Although socio-cultural norms persist, residents have diverse food preferences as they adapt to change.

The strong social connections and networks in the islands play a significant role in facilitating domestic trade of food. People often rely on connections with friends and family in Malé to purchase weekly bulk food supplies. Social networks also come into play as local shop owners place orders with wholesalers in Malé, based on informal business relationships. At the same time, people use social relationships and ties with other islands when selling surplus food produce. Similar aspects of social capital through social networks has been highlighted in other SIDS (McConney et al., 2014, Saint Ville et al., 2020a), where social networks and capital promote self-organization and innovation in local food systems. However, Nunn (2007) argues that socio-cultural networks in many SIDS have been suppressed, reconfigured, or lost as a result of colonialism, development and globalization. However, in the Maldives, despite rapid development, residents in small island communities such as Felidhoo and Magoodhoo use their social connections to access affordable and good-quality food.

In the Maldives, the diversity in food import source countries and the diversity of food varieties that are imported, has created a complex food environment. This diversity stems from strong contemporary economic and trade connections, while noting that a long history

of seafaring in the Maldives has influenced contemporary food trade. Political connections through bilateral relationships with neighbouring countries including India facilitate and ensure reliable supply of food into the islands. The rapid expansion of the tourism sector had also encouraged traders to diversify food sources and varieties to fit the tourist food preferences. These strong global connections challenge the notion that SIDS are geographically distanced from markets, undermining their access to global food systems (FAO, 2014).

The Maldives food system is shaped by movements of people, ships, and trade, bound together through complex and evolving relationships and arrangements (Bernardie-Tahir and Schmoll, 2014). The sea acts as a 'road' (Hau'ofa, 1994) via which trade and movement can thrive, facilitating connections between islands (Hayward, 2012). At the same time, the local resources of the sea – including fish - are crucial to island life; fish remains a critical component of everyday food in the Maldives. The Maldives tourism sector also thrives on the rich littoral beauty of the islands, which provides revenue to ensure consistent flow of food imports into the country. As Baldacchino (2020b) states, having larger oceanic space and limited land is not always a challenge, but also an opportunity for islanders to use the abundance of resources oceans provide, in this case critical to the organization of food system in the islands.

This chapter has considered the intricacies of food consumption, production, distribution, and trade in the islands. It has shown that their unique islandness features are ingrained in everyday lives and shape food system activities. This chapter points to three key factors that are vital to the food system in the Maldives: socio-cultural norms and food practices in the islands; strong social networks that support food production, sharing and trade; and strong and diverse global connections through trade. As island scholars explains, each island has an 'ecology' of its own (Baldacchino, 2020b) and they are heterogeneous in a form of 'irreducible uniqueness' (Hay, 2006: 212). This chapter provided a human-centred account of food systems in Maldivian islands, shedding light on unique attributes of the Maldivian food system. The next chapter examines the everyday complexities and risks to the food system in the islands and the impacts of sudden shocks, based on people's accounts of the risks and challenges they face in their everyday lives.

CHAPTER 6
FOOD SYSTEM CHALLENGES: FROM EVERYDAY RISKS TO SUDDEN SHOCKS

Chapter 5 focused on how the food system in the Maldives is organized in terms of consumption, production, distribution and trade in the islands. It foregrounded place-based norms and practices of food system dynamics to illustrate how distinct characteristics of Felidhoo and Magoodhoo Islands, as well as the Maldives, shape food security. The chapter emphasised that food consumption patterns are deeply rooted in histories, culture, tradition, and religious norms which foster a sense of community in the islands. In terms of domestic trade, it highlighted the vital role of social connections and networks in facilitating access to food. Further, it examined how diverse international trade networks and access to markets has created a flexible and adaptable food environment in the Maldives.

However, food systems and food security face diverse challenges. Food scholars (Ericksen, 2008, Béné et al., 2019, Ingram, 2011) present factors that drive changes in food systems and the risks they pose to community-level food security. These factors operate at different scales (Ericksen, 2008); for example, household food security might be influenced by factors operating at local, national and international scales. As indicated in Chapter 2, it is important to consider the multi-scalar interactions that influence food systems (Hasnain, 2020a, Ericksen, 2008).

This chapter addresses the second research question, 'What are the main risks and challenges to the food system in the Maldives?' It focuses on the diverse, multi-scalar and interconnected risks and challenges to the Maldives food system. The first section evaluates the everyday risks and challenges to the food system – i.e. food system stressors - as experienced by people residing on Felidhoo and Magoodhoo Islands. These include global and local level challenges linked to geopolitics, climate change, resource limitations, an expanding tourism sector and policy and regulatory concerns. It examines the ways in which these multi-scalar challenges result in inequalities in access to food and quality of

food available from the national to the local island level. The second section evaluates the consequences of the COVID-19 pandemic as a sudden shock to the food system, highlighting people's lived experiences. It finds that despite the initial shock and panic, threats to the food system were addressed across spatial scales as actors at the local, regional and national levels coordinated and managed the impacts of the pandemic.

6.1 Everyday risks and challenges to food system

This section explores the multi-scalar risks to food system in the islands, as reported by residents focusing on local impacts of global geopolitics, climate change, resource scarcity, expansion of tourism and weak regulation and policy concerns. These challenges were perceived by participants as everyday realities in the islands.

6.1.1 Geopolitics

In Magoodhoo and Felidhoo Islands, a widely shared concern was the volatility of food prices. Ihsan, a resident in Magoodhoo Island, expressed concerns about the frequent fluctuations and food price increases. He noted that changes occur almost every time supply boats return from Malé with food shipments:

> Price volatility here is incredibly high, particularly when it comes to food. I have observed that almost every time the boat goes to Malé and returns, the prices of food would have changed. The fluctuations are often moderate, with prices increasing by at least MVR 3-4 per trip. Only rarely the price would not change. (Ihsan, Magoodhoo Island)

Similarly, a home-based pizza maker in Magoodhoo Island noted significant increases in food prices. According to her, the prices of key food ingredients she uses daily for her pizza business have dramatically increased, making it difficult to sustain her local business:

> Even whole chicken is now priced at MVR 90 [USD 5.8] or 80 [USD 5.2], whereas it used to be MVR 65 [USD 4.2]. Similarly, a kilogram of cheese now costs MVR 110 [USD 7.1], whereas previously it was MVR 75 [USD 4.8]. Yesterday, a customer also expressed concern about the prices of our pizzas being too high…but how can we not raise the price when the cost of the ingredients are this high. (Lubana, Magoodhoo Island)

According to residents, food prices on their islands are much higher than in Malé. Hafsa, a 39-year-old resident woman in Felidhoo Island, shared her concerns:

> If shop owners in the island hear that the price of flour is going to increase in Malé, the prices of flour in the island will already be increased. That's how volatile food prices are in these islands, and it is not very fair for us. (Hafsa, Felidhoo Island)

Food retailers in Magoodhoo Island attributed the increasing price of food in the islands to shifts in global geopolitics and economic shocks, especially the Ukraine-Russia War:

> Generally, food is expensive everywhere now. Yes, I agree people might feel that the price of food in my shop is more expensive than what they can get directly from Malé. Of course it is…the price of oil, chicken for example have rapidly increased globally and in the Maldives. I think a lot of it has to do with the war [referring to Ukraine-Russia War]. On top of that, we also have to add the costs of transportation, for which we need fuel. And fuel costs have doubled, tripled too. (Naufal, shop owner, Magoodhoo Island)

Similar challenges were raised by Felidhoo residents. Usman, a shop owner in Felidhoo Island said:

> Although we are very close to Malé, due to high inflation and increasing price of fuel, I struggle to bring in food supplies to the island. Food prices have rapidly increased, and the challenges are more severe for those of us residing in islands other than the capital. (Usman, shop owner, Felidhoo Island)

This points to the adverse impacts of global processes on food affordability and supply which further worsens at the local island level.

National food traders, from whom shop owners in Felidhoo and Magoodhoo Islands buy food, also spoke about the impacts of global geopolitics on national and local level food access in the islands. Haris, a food trader in the Maldives, described his experience of bringing in food supplies in the midst of the Ukraine-Russia war, sharing concerns around rising freight prices due to heightened fuel costs and the increasing prices of certain food items - such as cooking oil - where Russia and Ukraine play pivotal roles in production:

> 75-80% of the world's sunflower oil is produced in Russia and Ukraine. In Russia the problem is sanctions and in Ukraine the problem is there are no ports. So recently, we had an issue with sunflower oil due to the Russia-Ukraine War situation. Our supplier was having a one-to-two-month gap in sunflower oil supply. (Haris, Food Trader)

This ongoing fuel crisis also affects fishermen who depend on motor-fuel for their boats; fishing trips are more expensive, which limits profits and in turn affects their overall income. Tuna fishermen in Magoodhoo Island described the impact of the global fuel crisis on their livelihoods, requiring them to increase the price of fish they sell to offset increasing fuel costs:

> At the moment an oil barrel costs MVR 3400 [USD 220] and at this cost at a time we have to spend MVR 50 to 60k [USD 3243 – 3891] per fishing trip. That is a huge expense for us. On top of this we must buy ice, water, food…So expenses per trip will be above 60k per trip. So naturally we make less profit now and this do have implications on our lives, including the food we buy. (Rashad, Fisherman, Magoodhoo Island)

Similar concerns were raised by traders regarding the civil unrest in Sri Lanka. Given the strong reliance of the Maldives on Sri Lanka for food imports and transit of cargo ships, as highlighted in Chapter 5, disruptions in Sri Lankan ports and transportation systems directly impact the efficiency of shipments reaching the Maldives. An official from the State Trading Organization (STO) stated that shipments that previously took between six hours and two days to reach the Maldives can now take up to four days due to the ongoing civil unrest (Sameeha, STO). Traders also expressed concerns that these disruptions could escalate to the point where ports are closed, potentially threatening overall food security in the Maldives:

> 99% of the food stuff we bring transits in Colombo. If the situation in Sri Lanka worsens, then the port in Sri Lanka could shut down and we are going to start seeing huge delays in logistics. We are already planning for this. (Aman, Food Trader)

While conflict can cause sudden disruptions to food systems, people from Magoodhoo and Felidhoo Island explained that they have begun to expect these disruptive impacts in their everyday lives. Given dependency on food imports can place people in these islands in a precarious situation, they have learned to navigate price fluctuations. Arifa, a 40-year-old woman in Magoodhoo Island, asked:

> When has food ever been really cheap? One day it will be fine, the other day something would happen and prices would have skyrocketed. And it will go down again in a couple of days. It is the reality in these islands and we just have to find a way to keep going. (Arifa, Magoodhoo Island)

Another geopolitical challenge highlighted by residents of Magoodhoo and Felidhoo Island was concern over the ongoing 'India Out Campaign' that has fuelled political tensions between the Maldives and India. This political rhetoric, propagated by the opposition party in the Maldives during early 2020, calls for the removal of the Indian military stationed in the Maldives; according to opposition politicians, there are plans to develop an Indian military base. Some residents including shop owners expressed concern that if the campaign escalates, India might stop sending food which would further increase the price of food staples:

> This India-Out Campaign is concerning for me. What if this escalates and India decides to cut ties with us? That would really increase the price of key food staples like onions, eggs, and potatoes for us. (Abdulla, shop owner, Felidhoo Island)

The potential consequences of escalating political tensions between the Maldives and India, leading to India halting the import of key food staples to the Maldives, were discussed with a food trader. He recounted a previous incident when India ceased exporting onions, a crucial ingredient which the Maldives imports, as an example of the potential consequences of escalating political tensions:

> I remember the last time when India stopped exporting onions due to damage to their onion farms and limited stock. We had to source onions from Turkey and the Netherlands, even resorting to importing red onions from Spain, in reefer containers. But using reefer containers is more costly than bringing in loose cargo from India and at the time we saw a dramatic increase in the price of onions. This situation provides us with a glimpse of the potential impact on food affordability if India were to cease exporting key ingredients to us. (Haris, Food trader)

Conversely, a senior government official argued that such political rhetoric and propaganda does not impact the 'good relations' between India and the Maldives:

> Our foreign policy and relationships do not hinge on the PR and political propaganda internally. We are assured that this will not strain the good relations we have with India, and it will not affect our food security. Our relationship is stronger than that. (Shamil, Ministry of Economic Development)

This section has shown that the Maldivian islands face local repercussions due to global geopolitical tensions and economic shocks. This results in significant volatility in food prices, particularly for those residing in islands other than the capital island of Malé.

Despite these challenges, residents of Magoodhoo and Felidhoo Island adapt to and navigate price fluctuations in their everyday lives. Nonetheless, they remain concerned about a potential escalation in political tensions between the Maldives and India, which could in the future threaten food security of these islands.

6.1.2 Climate Change

Residents are concerned about global and local impacts of climate change. Global climate risks were understood to have local consequences. Specifically, residents indicated that climate change-related disasters in major food source countries, such as India, can have ramifications at the national and local island level. Food traders explained the chain of effects whereby sudden onset climate disasters in food-producing countries translate to threats to food availability and access within the Maldivian islands. Haris, a food trader in the Maldives, spoke of the illustrative case of the 2021 flood in India during the monsoon period. This event directly affected the prices and availability of essential food staples in the Maldives, such as rice, onions, and root vegetables. Yet such price fluctuations are an annual occurrence, as monsoons in India consistently lead to spoilage and increased prices of these commodities. For instance, according to Haris, during a recent episode of flooding in India, Indian basmati rice became notably more expensive than Pakistani basmati with a price difference of USD 200 to 300 per tonne. This caused a substantial surge in the cost of rice throughout the country.

Residents noted that everyday access to food is affected by local impacts of climate change. According to subsistence producers in Felidhoo and Magoodhoo Islands, climate change impacts food production, particularly during sudden onset environmental changes. For example, in 2020, unexpectedly heavy wind and rain resulted in the loss of numerous breadfruit trees in Magoodhoo Island, which are economically valuable and a supplementary income source for many. This incident coincided with peak breadfruit season which exacerbated the losses faced by farmers. Zareena, a farmer and a member of the Women's Development Cooperation (WDC) in Magoodhoo, shared her experience of this extreme weather event:

> Almost 16 trees in the island were impacted. This also happened during the peak breadfruit season in 2020. Many people on the island depend on selling breadfruit

> as an additional source of income for them. Because it was peak season, when this happened, there were so many breadfruits ready to be harvested and sold – so it was a huge loss for many. Even in houses where the plants did not fall off, their breadfruits fell. (Zareena, farmer/WDC member, Magoodhoo Island)

Similar concerns were raised by farmers with banana and papaya plantations in Magoodhoo Island who stated that every year during the *hulhangu* season (May to December) several of their plantations are destroyed due to severe gusts of wind and heavy rain (See Figure 6.1). Farmers believe that strong monsoon winds and rain have worsened over the years and become more unpredictable now, which prevents them from accurately planning and adapting and results in significant financial losses. A banana farmer stated that during monsoon season they lose an average of eight to ten banana stems, with each stem weighing around 25-30 kgs, leading to a significant loss of income for those who practice farming as a livelihood activity (Naeem, Farmer and Member of the Magoodhoo Cooperative Society). Similarly, in Felidhoo Island, Abdul, a passionate farmer who sells surplus fruits and vegetables that he grows in his backyard to nearby islands and Malé market, shared accounts of how his banana plantations get uprooted and severely damaged due to unpredicted and sudden-onset disasters, which according to him have worsened over the years:

> There have been many occasions where the plants that I grow were uprooted completely and destroyed due to unforeseen and unexpected heavy rain and wind. I think this has worsened now. It mostly affects big trees like bananas as you can see here [pointing to a damaged banana plant]. But then again, what is lost is lost. There is nothing much we can do. (Abdul, Farmer, Felidhoo Island)

Figure 6.1: Damage to banana and papaya plantations in Magoodhoo Island (Photo by Magoodhoo Cooperative Society)

In addition to unpredicted changes in the climate and worsening impacts of sudden onset disasters, extreme heat is a concern for farmers in Felidhoo Island. Nadwa, a woman who grows chillies and mangoes in her small front-yard said that she finds it challenging to grow produce due to increasing heat in the island:

> I think it is getting extremely hot these days. I find it very difficult these days to grow chillies or even mangoes because they just dry out so quickly and die. Even with salad leaves like *Kopee Faiy*, the leaves dry out and wilt so quickly. (Nadwa, famer, Felidhoo Island)

Similarly, fisherfolks noted the increasing difficulties in catching bait fish, which they linked to climate change and more unpredictable seasons and weather. This has a direct impact on tuna fisheries as a fisherman in Magoodhoo Island attested to:

> With seasonal changes, bait availability also changes. There are certain seasons when bait moves more inwards to the islands from the open sea. So, during these seasons we will get plenty in just a few hours. In other instances, we might get none. Might even take 12 days just to get bait and we are not able to do any tuna fishing without enough bait. But now with climate change it is more difficult for us to predict these seasons. (Hamid, Fisherman, Magoodhoo Island)

In addition to the impacts of climate change on subsistence production, people also shared instances where changes in weather or extreme weather events affect transportation networks and infrastructure. As illustrated in Chapter 5, the geographical dispersion of the Maldivian islands means that food is transported by sea from Malé to the islands. However, the monsoon seasons bring rough seas, leading to delays and disruptions in food shipments. Extreme weather events have also caused damage to shipments, making food unsuitable for consumption. For example, shop owners in Felidhoo explained how severe weather caused damage to frozen goods, fruits, and vegetables during transportation resulting in financial losses. Inadequate cold storage facilities on supply boats further exacerbate the issue, with the risk of frozen goods defrosting during extended delays, as explained by Adam, a member of the Felidhoo Island Council:

> Sometimes due to extremely bad weather, boats are restricted from travelling out in the sea. In those cases, they will be forced to wait until the weather warnings end and the storm clears. If the boat was originally planned to leave tonight, all goods would have been loaded onto it by the afternoon. However, if the boat cannot leave due to the weather, perishable items may spoil before reaching this island. Some boats have proper storage facilities like deep freezers and fridges, but others don't. So sometimes, frozen food we get are entirely damaged or unusable by the time it reaches us. (Adam, Felidhoo Island)

The impact of weather-related delays on shipments was also profound in Magoodhoo Island. During the initial visit to Magoodhoo Island, residents had expressed concerns about the absence of chicken in the island that week. Subsequent conversations with shop owners unveiled the reason for this: severe weather conditions had damaged a week's shipment of frozen chicken on route from Malé. As a result, the islanders were compelled to wait for the next shipment which arrived a week later:

> Recently, a shipment of chicken and other frozen foods from Malé to our island was entirely washed away and damaged by rough seas and huge waves. Approximately MVR 40,000 [USD 2594] worth of goods were lost. Since all shops in the island rely on this weekly supply boat for frozen food, nearly all shops ran out of chicken stock. We had to wait for the next shipment, which arrived a week later, to replenish our stocks. (Anwar, shop owner, Magoodhoo Island)

The repercussions of such disruptions were keenly felt by local shop owners and the community; according to many islanders, they could not make their usual chicken-based meals that Friday, which has become a common source of protein for the islanders.

Similar extreme weather-related damages to food shipments occur at the seaports in Malé, from where food gets redistributed to islands like Magoodhoo and Felidhoo (as detailed in Chapter 5). Port officials shared accounts of such incidents where at times entire food shipments had to be discarded:

> The off-loading harbour area [See Figure 6.2] is highly prone to severe conditions during storms, including sea swells and flooding. These weather events are becoming more frequent and prolonged now. As a result, offloading processes may need to be paused, causing perishable items like vegetables and fruits to spoil on the ship, unable to offload and store properly. So in some extreme cases, entire shipments of food may need to be discarded into the ocean directly from the boats due to delays and spoilage, sometimes resulting in the disposal of up to 90% of a single voyage's shipment. (Shamin, Port Official)

Figure 6.2: Off-loading area in the main port which is flood-prone

Water scarcity during dry seasons is another recurring challenge faced by island residents. Nadwa, a 35-year-old woman belonging to a family of six in Felidhoo Island, stated that during the dry season they often run out of rainwater which is their main water-source for drinking, cooking and domestic purposes. As a result, she is compelled to ration their rainwater usage for essential purposes, and resorts to bottled water for drinking which is an added expense:

> We also run out of drinking water quite often - so we have to manage by reserving rainwater where possible to use for cooking and domestic purposes and use bottled water for drinking- otherwise, we are scared that we might run out of rainwater completely. But buying bottled water is an added expense for us. (Nadwa, Felidhoo Island)

As the above narratives from residents in Magoodhoo and Felidhoo Island reveal, extreme weather and climate change impacts are understood to shape everyday food security. However, these widespread risks and challenges have been accommodated into their everyday lives. Akram, a 74-year-old man shared his long experience living in Felidhoo Island, saying that people in these islands have long lived with the unpredictability that the ocean brings and have mastered the skills and technology to navigate those challenges:

> I have lived in this island my whole life. Weather gets bad some days. Some days the sea will be too rough to travel. This is not happening today, but this is what life in islands feel like. I remember when I was small, we had sailing boats which were much more weather dependent for travelling. Now at least we have engine boats and speed boats, that are better equipped to navigate the challenges. (Akram, Felidhoo Island)

Such narratives are common in Felidhoo and Magoodhoo Islands. People perceive climate change impacts as part of everyday life, with local adaptations building on years of exposure to environmental precarity (see Chapter 7).

Thus, this section shows that the impacts of climate change, some of which originate globally and others locally, are concerns for both Magoodhoo and Felidhoo residents. Climate-induced disasters in major food-source countries such as India have immediate ramifications on the availability and price of food locally. Extreme weather events affect subsistence production and food transport between the islands, leading to financial losses and temporary food shortages. Water scarcity due to prolonged dry seasons also forces people to ration harvested rainwater. Despite these challenges, islanders have adapted to the unpredictability of the climate, relying on skills and knowledge gained over years of living with the unpredictability of the ocean.

6.1.3 Resource Limitations

Residents also shared concerns about limited resources in the islands, which constrains their ability to produce food at a subsistence level. A farmer in Felidhoo Island emphasized

that his aspirations to enhance food productivity are significantly hindered by the lack of adequate land for cultivation:

> It is extremely difficult to grow any proper food-yielding plant on the island, due to land scarcity. So, in terms of resources, we are very limited. However, we still try and grow them in our backyards and front yards in pots – but that is not enough for even our own consumption. So, we always have to resort to buying food items from shops. (Hafsa, Farmer and member of WDC, Felidhoo Island)

Residents of Felidhoo and Magoodhoo Islands also noted that the absence of island-owned supply boats affects food supply, as they have no control over transportation costs and fees. This challenge was highlighted by a shop owner in Felidhoo Island who stated that not having their own supply boats has led to food price increases:

> We don't have our own boat to supply items. We depend on boats from Laamu, Meemu or Faafu atoll [nearby atolls]. Anyways, what happens then is every now and then the boat tends to increase their fees/charges for the supplies. For example, from MVR 8 to MVR 10. So every time they get to monopolize on the opportunity, they will because we don't really have a choice as we don't have a boat owned by the atoll. (Abdulla, shop owner, Felidhoo Island)

This unequal distribution of control over transportation and supply has resulted in differences in access to food between island residents and those residing in Malé. Hasna, a woman from Magoodhoo Island, shed light on unfair dynamics whereby the monopolistic control of boat owners means that island residents are at the mercy of supply boat operators. The price hikes they impose can strain the financial resources of residents who rely on these boats for essential food supplies. This underscores the vulnerability of island communities in their access to food:

> What the owner of the atoll supply boat does is every week they increase the price of transportation fees because they have control and they know that no matter what we will have no choice but to use their services and this is crazy and unfair. (Hasna, Magoodhoo Island)

Another resource-related challenge is the limited or inadequate food storage capacities in supply boats. Many supply boats rely on ice boxes to transport frozen goods. These boxes can maintain freshness for a maximum of 18 hours. However, any delay beyond this timeframe poses a serious risk. Aishath, an 18-year-old shopkeeper in Felidhoo Island,

illustrated this point vividly when she recounted a recent event where transport delays that lasted for three days meant that the frozen chicken for her shop, ordered for Ramadan, had to be discarded:

> With frozen items like chicken, if the boat gets delayed due to bad weather, it is a huge problem for us. Supply boats will usually bring frozen items in ice boxes which will stay fresh for 18 hours maximum. If the boat by any reason gets delayed beyond 18 hours, then we will have a problem. Once we had to throw away all the frozen chicken, due to delays and malfunctions which lasted for three days. Last time almost all the frozen chicken we got for Ramadan was almost defrosted when it got here. (Aishath, shopkeeper, Felidhoo Island)

Similar concerns were raised by a shop owner in Magoodhoo Island who relies on local supply boats to bring in food. Without proper facilities to maintain the right temperature and conditions during transportation, the quality and safety of food are compromised, potentially leading to health risks (Naufal, shop owner, Magoodhoo Island). Similar storage-related concerns were raised by an NGO representative, sharing observations made during the unloading and transporting of frozen food from warehouses to supply boats in Malé, on route to islands like Felidhoo and Magoodhoo Island:

> I often see people leaving frozen goods on the pavements outside their shops for extended periods during offloading processes. These goods are then transported in vehicles to supply boats without proper storage facilities. This is a real issue. (Samira, NGO representative)

The small size of the islands also limits storage space. Shop owners said that due to limited space and lack of island-wide storage facilities, they usually bring food supplies in small, but frequent orders. It was common to see food stored on front porches of houses or in front yards, without quality control and infrastructure to keep the goods fresh and safe (See Figure 6.3).

Figure 6.3: Food storage outside shops and houses

Similar space and resource challenges occur at the national level, at the Malé ports and the North Harbour, the central hub from which food is redistributed to Magoodhoo and Felidhoo Islands (as explained in Chapter 5). The limited space and high congestion at the Malé North Harbour posed a huge challenge for food traders and supply boat captains. According to them, this hinders the quality of food and the frequency in which food arrives in Magoodhoo and Felidhoo Islands. According to a North Harbour official, while the harbour can only accommodate a maximum of 37 boats (depending on size), they usually have over 40 waiting in queue at any given time (Azza, North Harbour Official). This congestion has led to vessels lined up, often extending as far as the lagoon (See Figure 6.4). This severe congestion has led to challenges in accessing or loading food items, and inefficient food distribution processes.

Figure 6.4: Aerial view of the Malé North harbour (Source: Shaheeilyas)

A food trader in Malé offered their perspective on the challenges arising from space limitations at the harbour:

> Now it is very challenging to load items onto the boats at the Malé North Harbour. The boats might not be able to lodge by the harbour for three to four days upon arrival. Once they get to the harbour, they will want to load as quickly as possible and depart. If we go earlier, they will not load [perishables] and sometimes by the time we get there the boat might have filled up and we will not be able to load and again come back with all the goods. So sometimes we even miss shipments because of the issue of space and congestion at the North Harbour. (Haris, Food Trader)

The repercussions of challenges at Malé ports and harbours extend to supply boat arrivals across the atolls and islands, ultimately affecting food availability in these locations. For instance, residents of Magoodhoo and Felidhoo Islands observed that certain perishable food items such as fruits and vegetables are only accessible on the day the supply boat arrives and for a couple of days thereafter. As shops avoid bringing in large quantities of perishable goods due to storage space limitations, prolonged delays in supply boat arrivals lead to extended waiting times for fresh food stocks. A 27-year-old woman from Magoodhoo Island spoke of this issue:

> Atoll boat comes once every week. Usually, we will get fresh stocks and items on the first two days after the shipment has come through the boat, then again until the next shipment comes, we will struggle a bit. Common food ingredients are available, but what is difficult to get is fruits and vegetables. Fruits and vegetables would usually go out of stock on the day the shipments come through. (Faheema, Magoodhoo Island)

Storage challenges in Malé also affect the quality of food that is made available for residents of Felidhoo and Magoodhoo Islands. According to officials from STO interviewed, the organization currently maintains two warehouses dedicated to storing rice with separate facilities for flour and sugar. Sajida, an STO official, noted the sensitivity of certain food items like rice to environmental factors such as moisture. She highlighted that even slight fluctuations can significantly impact the quality of these food items, necessitating close monitoring, fumigation and regular cleaning. Despite these efforts, the officials acknowledged that effectively and adequately storing key staples remains a challenge due to old infrastructure and limited space:

> We are still in the same location and building which was established 30 years ago. Unfortunately, our storage space has not expanded despite the increasing population and demand for food item each year. As a result, we are compelled to stack sacks of rice and other items up to the ceiling, which inevitably affects the quality of our stock. To mitigate this, we've had to install blowers throughout the warehouse and exhaust systems to manage moisture levels. (Sajida, STO Official)

A senior government official responsible for overseeing food storage and distribution regulations confirmed these concerns, emphasizing the challenges associated with food storage and warehouses, particularly food staples. He stated, 'we have received reports and witnessed several instances where large quantities of rice, flour and sugar had to be discarded due to infestations of lice and pests, stemming from improper storage practices' (Migdad, Maldives Food and Drug Authority).

Thus, as highlighted in this section, several challenges are experienced by residents of Felidhoo and Magoodhoo island, due to resource scarcity. Limited availability of space impacts their ability to effectively engage in subsistence farming. The absence of island-owned supply boats forces them to rely on other atoll supply boats (external sources), resulting in power imbalances. Limited storage space and facilities in islands as well as on supply boats and in warehouses in Malé, compromise the frequency and quality of food that is available for residents of these islands. This creates inequalities in access, availability and quality of food between Malé and these islands.

6.1.4 Rapid Expansion of Tourism

Concerns were raised by residents of Felidhoo and Magoodhoo Islands about the expanding tourism sectors in the islands and atoll. This expansion is seen to shift employment preferences among the younger population, which results in declining interest in traditional food-producing sectors like fisheries and agriculture. These sectors are often labelled as 'undesirable occupations' due to their labour-intensive nature and comparatively lower remuneration compared to tourism. An island council member in Felidhoo Island noted that fishing is viewed as physically demanding and less appealing than work in a tourist resort:

> Fishing used to be one the key livelihood activity of the island. But with more development and expansion of tourism, people have started thinking that fishing is a 'degrade' business and they don't want to be involved in it. They also think that it's too much hard labour compared to other income generating activities like working in a resort. (Adila, Island Council Member, Felidhoo Island)

Furthermore, the rapid expansion of tourism has led to the commercialization of local produce, reducing accessibility for local residents of, for example, locally-caught fresh fish. A woman in Felidhoo Island shared the consequences of this over-commodification:

> Fish is not available. It is very scarce. Even during the last Ramadan, we didn't get much fresh fish and hence we had to use canned tuna the whole month. We only get fresh tuna, if the fishing boats in the island brings back any after selling off to exporting companies, resorts or guesthouses. (Shafiya, Felidhoo Island)

Similar concerns were echoed by Magoodhoo Island residents, despite three registered tuna fishing vessels in the island. Rashida, a 31-year-old resident, expressed her frustrations:

> As you know, fish is a staple for us Maldivians. But I hardly get fresh tuna locally from the island, even tuna fishermen in our island seldom bring any to sell to us. So I often resort to frozen fillets of tuna available to buy from local shops, although they are not always readily available. Alternatively, I rely on smoked or canned tuna as substitutes. (Rashida, Magoodhoo Island)

Residents also expressed concerns that even when local fishermen occasionally return to the island with leftover tuna to sell to residents, these are the fish that have been rejected due to small size or not meeting high export guidelines. Therefore, residents feel that the fish they obtain are of lower quality.

Fishermen in Magoodhoo Island explained, for example, that they do not bring fish to the island to sell because it is more profitable to sell to resorts:

> The reality is that residents of the islands cannot purchase a kilogram of tuna or any other kind of at the same price as those in the resorts. Resorts are willing to purchase fresh fish at double the price, providing a lucrative opportunity for us. Since this is our livelihood, it's essential to pursue the most profitable avenues available to us. (Ahsan, Fisherman, Magoodhoo Island)

Similar concerns over the commodification of land-based local produce were highlighted by an NGO official, who indicated that farmers now prefer to sell to resorts rather than locals (Sharif, NGO representative). During conversations with farmers in Magoodhoo Island, they said surplus is often sold to nearby resorts as they find this more profitable than selling locally. For example, Hasna, a 48-year-old woman farmer in Magoodhoo Island prefers to sell to resorts over local shops:

> I enjoy farming and often get surplus of things like butternut. I first tried selling these locally, but I found that it took longer to sell and generate a decent profit. Then, thankfully my brother connected me with a nearby resort and negotiated a good deal for me. Now, I send my surplus supplies to this resort every month and earn a much better profit out of it. So, I think tourism has opened up a new market for us. (Hasna, Farmer, Magoodhoo Island)

This rapid expansion of tourism in local islands has implications for local consumption patterns and food cultures. It has led to the transformation of local diets, altering traditional practices, food preferences and giving rise to a demand for Western-style food options due to expansion of local guest houses and restaurants in their islands. For example, a resident of Felidhoo Island expressed concerns about her children's food preferences, shifting more towards local cafés and restaurants, which offer a western-style menu catering to the tastes and preferences of tourists:

> We now have a number of guesthouses on the island, many of which come with their own restaurants or catering facilities. At the same time, there has been a noticeable increase in the number of cafés and restaurants, which was almost non-existent before the establishment of guesthouses. While this growth is positive in many aspects, I can't help but feel concerned and sad as my 18-year-old boys no longer prefer to eat at home. They seem to like the tasty and western-style foods available in the restaurant, such as pizzas, sandwiches and burgers, which I rarely

> prepare at home. I worry that this shift in their food preferences and tastes is changing their relationship with traditional home-cooked meals. (Asma, Felidhoo Island)

While tourism influences food availability, prices, and preferences many see this as an opportunity to diversify food cultures. Residents said that they enjoy the establishment of restaurants, with more diverse food menus where they can spend time with friends:

> I come here [the restaurant] every day. I love having this place in the island. I see it as a space to have some nice food, which we have good options to choose from… at the same time it is a place for me to meet friends and catch up. (Khalid, Felidhoo Island)

However, some residents shared concerns about how the increasing number of restaurants is causing unhealthy eating habits. As one health officer explained:

> I personally think that the opening of more cafés and restaurants in the island have had an impact on the health of the people. I have noticed that the same group of people spend time at one restaurant in the afternoon and another at night. One specific restaurant on the island serves fried parathas, chicken, and fried sausages every night, and it's concerning to see people consuming these items regularly. (Zubair, Magoodhoo Island)

Further echoing this point, Zubair noted that he has observed and recorded an increase in non-communicable diseases (NCDs) in Magoodhoo Island. He attributes the increasing cases of NCDs to unhealthy food served in restaurants and inactive lifestyles. He said:

> I remember, 38 years back, when I first started working in the health sector, I did not even know a single person in the island who had hypertension. However, now, we have so many cases of diabetes, hypertension, high cholesterol, heart diseases and kidney diseases. I think this is mainly due to inactive lifestyles and eating way too much junk food served in these cafés and restaurants. (Zubair, Magoodhoo Island)

Thus, the rapid expansion of tourism has consequences on food availability, quality, prices, and preferences in the islands. It reshapes traditional livelihoods such as fisheries and agriculture. It has led to the commercialization of local produce to cater to tourists, reducing fresh fish and locally produced fruits and vegetables to residents. Tourism has also transformed local diets, tastes and food preferences, with declining interest in home-

cooked meals and a growing preference for Western-style meals served in cafes and restaurants, leading to health concerns.

6.1.5 Regulatory and Policy Concerns

Broader national-scale factors are also understood to contribute to food system challenges, particularly weak regulatory and policy measures. Government officials said that there is confusion over the mandates of institutions, leading to regulatory challenges and tensions between who does what. As highlighted in Chapter 4, the current food regulatory framework remains fragmented, and draws authority from multiple legal acts and mandates. This situation results in inadequate action in regulating the quality of food imports and locally produced food, as explained below by a senior official at the Maldives Food and Drug Authority:

> Internally, we are following the President's Office decree and we refer to the mandate given to us under this decree. We get the legal authorities to do certain things in miscellaneous ways; for example, some in the Public Health Act, some in Consumer Protection Act. So, there is a combination of different acts we follow including some in Fish Agri Ministry as well. Hence, our legal and institutional framework is quite messy in that sense. (Migdad, Maldives Food and Drug Authority)

This affects the capacity of government officials to effectively implement policies and regulations, especially the checks and balances needed at the ports and harbours. For example, the shortage of staff at the primary port in Malé was raised as a concern. At the main seaport in Malé, for instance, over 40-50 ships arrive daily, while the port health division operates with minimal staff. This poses risk to conducting effective food safety checks:

> Lack of adequate human resources are the biggest issue. We have very limited capacity. Even right now as you can see it is just the two of us here to do all the checks and everything. We go for the physical examinations as well and we are overstretched. (Assad, Port Health Official)

Inadequate staffing contributes to uneven regulatory enforcement across different ports. For example, regulatory measures appear weaker at the ports in the North and South where there are fewer officials to oversee regulations. The lack of regulation at these ports creates

concerns for food safety, including the safety of imported food for local consumption, as explained by an official from the Maldives Food and Drug Authority:

> For chicken that is imported via the ports in Addu [Southernmost atoll] and Kulhudufushi [An island in the North], and distributed to Malé, we are unable to keep track of how these are transported; meaning these items could be transported by simply covering them using a *sathari* [polythene cover] or in an ice box, when it should by regulation be only transported in a reefer container. The reason for this is the lack of manpower. (Migdad, Government Official)

Residents on both islands also expressed concerns over the safety of imported foods, with imported food, considered potentially unsafe due to lax regulations. Yet government officials said that more stringent regulation and monitoring could lead to unaffordable food prices and reduce food accessibility in the country.

Residents also expressed concerns about inadequate regulation and monitoring of local food production, including excessive use of fertilizers and pesticides, and feeble implementation of good agricultural practices. According to a representative from the Ministry of Fisheries, Marine Resources and Agriculture, there is limited government capacity to raise awareness among farmers across the archipelago about the consequences of prolonged and immoderate use of fertilizers and pesticides due to the vast geographical dispersion of the islands. Overreliance on synthetic agents has reportedly manifested in depletion of soil fertility, particularly in islands reliant on intensive agriculture. Government officials acknowledge significant gaps in the standardization and quality control of locally produced food (Nihad, Ministry of Fisheries, Marine Resources and Agriculture). A local gardener from Felidhoo Island underscored these concerns, indicating she prefers chemical-free homegrown produce to the vegetables available to purchase in her local island stores:

> I am indeed very happy to eat lettuce grown in my own backyard – because we do not use any chemicals in it. So, we have that assurance. In some of the vegetables that are store bought, you can even taste the chemicals, it is used that extensively. I think that is the reason for so many cases of cancer also. (Shabana, Felidhoo Island)

Migrant workers, primarily Bangladeshi labourers, are increasingly central to Maldivian food production and distribution networks. This migrant workforce has significant control over the food supply chain, from farming to transportation. There are tensions and disputes

between locals and migrants, including local food producers. A representative of the Agronational Cooperation, a State-Owned Entity, regulating the agricultural sector (further detailed in Chapter 7) underscored the substantial role of Bangladeshi workers and the consequences on local actors:

> Bangladesh people play a huge role in this. They grow, they sell in the market also, so it interrupts the chain a lot. So local farmers are not able to sell. Prices and what you sell depends on what these expat workers say, so there is no control over local products grown now. (Safa, Agronational Cooperation)

An NGO representative shed further light on Maldives-Bangladeshi dynamics. According to him, years of weak regulatory measures have facilitated unlawful and fraudulent recruitment practices concerning migrant labour in the Maldives. Bangladeshi brokers collaborate with Maldivian agents to orchestrate labour migration, with Bangladeshi workers often left susceptible to exploitation and human trafficking. This undocumented migrant population consequently represents an accessible and cheap workforce for labour-intensive tasks within the food production and distribution sectors—areas that have seen declining interest from locals.

Women from local islands expressed concerns regarding the pronounced influence of migrant workers within the food networks, exacerbating structural barriers that impede their own involvement in food production and marketing. An NGO representative, working closely with women farmers on these islands, explained that women farmers struggle to keep up with migrant farmers which sometimes prompts women farmers to hire foreign labourers to maintain pace:

> There are passionate women farmers who likes to physically work in their farms. But then the issue is when they see expat farmers working in the next farm, they think that they will not be able to do farming at that scale and they also opt to hire expats to keep up with this. Hence, expat workers are now taking over all the home-based farmers works. (Nisha, NGO representative)

Hence, at a national scale, weak regulatory and policy measures threaten food systems and food security in the islands. It results in confusion over food regulation mandates across the different actors, inadequate checks and balances of imported food, excessive use of fertilizers in home-grown food items, and tensions between Bangladeshi and Maldivian

local food producers and actors. Similarly, other challenges as described in this section include local impacts of global geopolitical tensions, global and local ramifications of climate change, issues around resource scarcity and the negative health and security concerns raised due to the rapid expansion of the tourism sector. These challenges are an everyday reality for residents of Magoodhoo and Felidhoo Island, perceived to have created inequalities in access, availability and quality of food.

6.2 COVID-19 pandemic

While the above section has discussed the perceived risks and challenges to the food system, this section focuses on the COVID-19 pandemic as instigating a sudden shock to the food system. It considers perspectives from local residents of Felidhoo and Magoodhoo Islands as well as national traders and government officials and examines perceptions of how the pandemic affected food security. Despite the initial challenges and panic, the food system adapted to the COVID-19 pandemic.

Initially, and at the national scale, the most significant repercussions were trade and shipping disruptions. Food traders explained that the worldwide closure of ports due to lockdowns caused considerable delays in shipments arriving from abroad. Moreover, traders explained that the substantial backlog of shipping containers resulting from sudden port closures exacerbated shipping delays. As one food trader said:

> No matter the origin of your food purchase, whether from the USA, Dubai, or elsewhere, it still typically transits through Malaysia or Sri Lanka before reaching the Maldives. However, the pandemic led to lockdowns in Malaysia and Sri Lanka, triggering a significant backlog of containers. Consequently, shipping times that once took two weeks stretched to two months, and delays that were once a month extended to three. This disruption wasn't limited to specific regions; it affected shipments from across the globe. (Aman, Food Trader)

The severity of these shipment delays was such that, in some cases, it reportedly took over a year for goods to reach the Maldives. These delays were also associated with lockdowns in source countries which restricted transportation from farms and warehouses to respective ports. A government official involved in the COVID-19 Emergency Response team corroborated these challenges, emphasizing that transportation restrictions within countries like India were responsible for significant supply delays in the Maldives:

> Food supplies were available in India, but internal transportation was hindered, making it challenging to transport supplies from farms to ports. This led to delays of up to two weeks in supply arrivals. Similar issues were observed with food supplies from Sri Lanka due to movement restrictions. (Zuhaira, National Disaster Management Authority)

Disruption in trade and shipping was further linked to a surge in container costs. The backlog in containers caused by the pandemic, coupled with China's protracted lockdown (a key shipping hub), led to a global container demand increase. According to key food traders, shipping companies exploited this situation by substantially hiking freight prices leading to a pronounced escalation in food costs within the country:

> Due to the sudden shutdown of ports, there were containers stranded all over the world, making it very difficult to obtain them. Even now [early 2022], containers remain stranded in various locations. One key reason for this is the closure of Chinese ports, given China’s significant role in shipping. With numerous shipping liners and containers operating from China, disruptions in their ports and prolonged lockdown, which continues, have had widespread repercussions on global container availability and logistics. (Sameeha, STO)

Traders said that due to the additional shipping expenses, they had no recourse but to raise prices.

Currency volatility and reduced USD availability further exacerbated import challenges and worsened the already inflated food prices. The pandemic-induced halt in tourism for six months, as borders shut down, considerably diminished foreign currency inflow and restricted the availability of foreign currency for food imports. Pre-pandemic, the government's National Bank allocated food importers 30% of USD for Overseas Transfer Payments at the official rate; however, market dynamics altered significantly during the pandemic, leading to a drop in the USD exchange rate. As a result, the national bank reduced the USD percentage allotted to food traders, which meant they had to buy foreign currency at a much higher market rate, further escalating the price of food to locals (Haris, Food Trader).

In Felidhoo and Magoodhoo Island, the temporary halt in transportation at the onset of the pandemic was a key challenge. For example, the Felidhoo Island council recounted:

> Transportation was put on hold completely. Our dependency on Malé for food imports left us at a loss, unsure of the next steps. Islanders felt that their only sustenance until stocks ran out were fish. (Hassan, Island Council Member, Felidhoo Island)

Transport challenges posed difficulties for local shop owners in Felidhoo Island in maintaining inventory levels, as irregular ferry services and limited on-island storage and food production restricted their ability to stockpile quantities of food. Hence, disruption to transport routes put them in a precarious position. The Felidhoo Atoll Council elaborated that COVID-19 shattered routines, which was stressful. Islanders were suddenly unable to access supplies from Malé, forcing them to depend on local shops. This surge in demand rapidly depleted food stocks, forcing the shops and the councils to carefully ration available food stocks equally across all residents in the island (Elaborated in Chapter 7).

Disrupted transportation caused some households to experience temporary shortages of key ingredients, like onions and chillies. A former shopkeeper in Felidhoo Island recounted that for two weeks she had no onions to sell in her shop. Similarly, she explained that the initial fishing restrictions (linked to lockdowns and movement restrictions), required fishermen already at sea to remain on their boats without interacting with anyone other than their crew, unable to sell their fish to locals, while those on the islands had to stay put until the initial lockdown regulations were eased and the government gained a better understanding of the virus. This led to an absence of fresh fish, with only vacuum-sealed smoked fish available in the islands (Fareena, former shopkeeper, Felidhoo Island). These supply shortages coincided with the Ramadan period. Humadha, a 46-year-old woman in Magoodhoo Island, said that during the early days of Ramadan they were unable to prepare certain staple dishes due to lack of ingredients:

> During the beginning of Ramadan, we were unable to prepare certain dishes due to ingredient shortages. Supplies only began to arrive later in the month, as boats transporting goods were delayed due to the Malé lockdown. Although staple foods remained accessible, ingredients with shorter shelf lives, typically supplied weekly, were affected. (Humadha, Magoodhoo Island)

Farmers and fishermen encountered challenges as lockdowns and movement restrictions impeded production. For example, commercial fishermen reliant on export markets and resorts experienced substantial income loss due to the pandemic's effect on these sectors.

A yellow-fin tuna fisherman from Magoodhoo Island explained that these impacts were devastating for both him and the economic stability of his family:

> The initial lockdown days were devastating for us. The first ten days were particularly harsh; we barely caught anything, and fishing seemed pointless since market avenues were effectively closed. Though the situation improved gradually, the initial loss was considerable. (Hamid, Fisherman, Magoodhoo Island)

Government officials in the fisheries sector said the huge decline in income for yellow-fin tuna fishermen was exacerbated by the temporary halt of imports to Europe: 'In case of yellow-fin tuna what happened was, Europe is our biggest market. But with the COVID-19 situation we stopped importing fish to Europe entirely, so it severely impacted yellow-fin fishers' (Nishana, Ministry of Fisheries, Marine Resources and Agriculture).

Subsistence farmers faced challenges accessing inputs such as fertilizers and pesticides. The Cooperative Society on Magoodhoo Island highlighted difficulties in sourcing feed for their poultry farms due to transport disruptions, leading to the sale of poultry and economic losses. Subsistence producers also grappled with transporting and selling their surplus produce to resorts and markets. The lockdown taking place during Ramadan intensified these difficulties, as this period usually sees increased backyard farming and surplus produce sales. A Magoodhoo Island farmer recounted her experiences trying to sell her produce; 'we had surplus of items like watermelons and pumpkins but selling them was challenging due to movement restrictions. We had to discard pumpkins in huge sacks as they spoiled easily' (Samiyya, Farmer, Magoodhoo Island). This predicament caused significant losses for Magoodhoo Island farmers, amounting to approximately MVR 200,000 (equivalent to approximately USD 12,970) in damaged fruits and vegetables during the pandemic, according to the Magoodhoo council.

Despite these reports of immediate and adverse impacts, many residents in Magoodhoo and Felidhoo Islands indicated they did not face significant challenges in accessing food during the pandemic. For instance, as one Felidhoo Island resident mentioned, 'we had challenges, but we never reached a point of complete hopelessness with no way to meet our food security needs. We managed it well' (Ali, shop owner, Felidhoo Island). Similar sentiments were echoed by, Ahmed, a government official, who compared the Maldivian

situation to that of more developed countries, suggesting that access to food remained relatively stable. He stated:

> Contrary to reports of empty supermarket shelves in Australia and the UK, such scarcity was not observed in the Maldives. Online shopping and delivery services appeared to expand locally, enhancing food accessibility. Consequently, food scarcity was not a pressing issue on an individual scale. (Ahmed, Ministry of Environment, Climate Change and Technology)

Residents of Magoodhoo Island also compared their experience of the COVID-19 pandemic to that of other countries. Zaid, a man interviewed in Magoodhoo Island, remarked:

> I think even in the entire world, there will not be a country that was as well managed as the Maldives…we did really well in managing the crisis. That is the reason why we survived. (Zaid, Magoodhoo Island)

Traders emphasised that local food supply was efficiently managed during the crisis, stating that 'overall, based on what little information we know of the pandemic's impact on food, I think we can say that food was managed quite well for the past two years' (Sameeha, STO). Civil society officials also validated this argument, attributing the sustained food availability to effective national coordination and crisis management. As one NGO representative mentioned:

> Although inflation initially surged, the government managed the situation capably. Thus, despite challenges, coordinated national efforts prevented a complete collapse of the food system. (Samira, NGO Representative)

Felidhoo and Magoodhoo Islanders linked local food system resilience during the pandemic to effective national-level management of the crisis. A resident in Felidhoo Island reflected on his experience, stating, 'even during the pandemic, I did not struggle much in accessing food. the government did well' (Faisal, Felidhoo Island). Similarly, several residents in Magoodhoo Island commended the national government in their efficient responses to transport disruptions and ensuring food supplies; 'the government knew that if such measures were not effectively taken, consequences would be dire for us' (Lubana, Shop owner, Magoodhoo Island).

Thus, different actors – from local residents to traders and government officials – highlighted that despite the initial panic, the pandemic was well-managed across all scales of the food systems. These experiences and narratives prompt the question: How did the Maldives avoid food insecurity during the pandemic? This is explored further in Chapter 7

6.3 Conclusion

This chapter has discussed the diverse risks and challenges to food security, including: the impacts of geopolitics on food supply and fuel prices, volatile food prices, impacts of climate change and extreme weather events, resource scarcity, inter-island transport challenges, diminished quality of food available at the local level, a rapidly expanding tourism sector, weak regulation of food imports and policy implementation, and the COVID-19 pandemic. Some of these risks to food systems in the Maldives originate and/or occur in other parts of the world, such as geopolitics and climate change, however they have multi-scalar impacts through to the local island level. Other risks originate locally. These different risks, of varying global and local origins (See Figure 6.5), impact food systems across the islands, with uneven consequences for people, populations and local actors. In the Maldives, the repercussions of these risks and challenges are substantially experienced by actors at the local island level. For this reason, and as highlighted in food systems scholarship (Ericksen, 2008, Ingram, 2011), it is important to analyse food systems across multiple spatial scales (global-national-island) and consider how risks and challenges interact across different scales (Ramalingam et al., 2008, Thompson and Scoones, 2009).

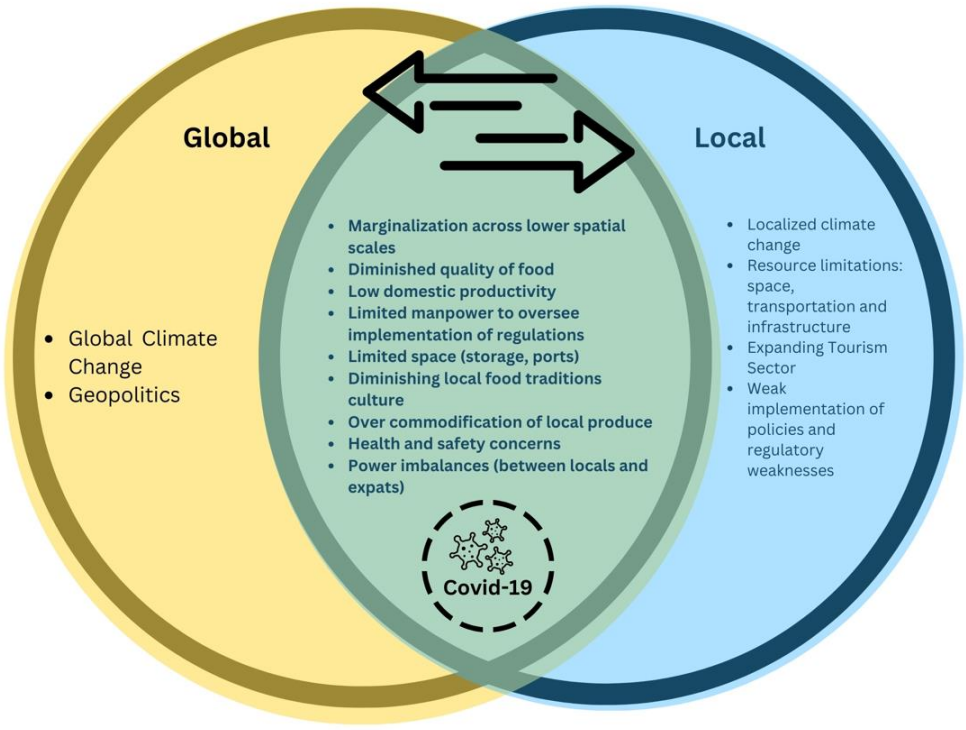

Figure 6.5: Summary representation of the multi-scalar risks and challenges to the Maldivian food system

Previous research on the vulnerability of food systems in SIDS has identified similar risks and challenges (Barnett, 2020, Connell, 2014, Connell and Lowitt, 2020). For example, noting the impacts of climate change on food systems in SIDS, Connell and Lowitt (2020) highlighted that Tuvalu, Kiribati and the Cook Islands have experienced severe droughts in recent years which has necessitated the import of freshwater, while increasing intensity of cyclones in Vanuatu, Fiji and Tonga has devasted agriculture and food systems. Similarly, a review of climate change impacts in Pacific Island SIDS concluded that climate change has potentially far-reaching adverse impacts on agricultural production, and threatens the ability of countries to import food through a reduction in income and damage to infrastructure for food distribution and the ability for households to purchase food (Barnett, 2020). For the Maldives, with its unique island geographies, the impacts of climate change disrupt international and inter-island maritime transportation, which results in damage and delays to food shipments. Climate change also impacts the productivity of

subsistence producers, including farmers and fisherfolks, as the impacts of unpredictable weather and sudden onset disasters threaten their income. And food price hikes due to global climate change impacts, such as flooding in a key food source country, have immediate and cascading local ramifications.

Wider research suggests that the dependency of SIDS on food imports and trade can threaten food systems (United Nations, 2011, AOSIS, 2012) due to limited investment in local food production, less diversification, and insufficient engagement with regional and global export markets (FAO, 2016). In the Maldives, access to globalized food markets and high import dependency can limit the productivity of local food systems and traditional food processing sectors, such as farming and fishing. This thesis also finds that a myriad of other risks and challenges - weak regulatory measures around food imports, inadequate policy implementation, limited human resource capacity at ports - lead to threats to the local food system.

Impacts of tourism on local food system are also explored in studies in SIDS (Berno, 2020). Some studies assert that tourism shapes food environments in islands (Gössling, 2001) and can represent culinary colonialism (Koa Dunsford, 2010), with many SIDS experiencing loss of traditional food habits (Berno, 2020). Echoing these findings, this research found that key staples in the Maldives, such as fish, have been excessively commercialized or reserved for tourists, limiting their availability to island residents, with lower-grade fish and other food varieties left for local consumption. Local farmers often sell their produce to resorts where they can earn more than when selling locally. Further, as with young adults in other SIDS (Connell and Lowitt, 2020), younger population in the Maldives increasingly seek employment in the relatively well-paid tourism sector rather than in labour-intensive fisheries and agriculture. In the Maldives, this has led to a growing reliance on migrant Bangladeshi workers to fill labour gaps in the food supply chain, creating tensions between locals and migrant workers. According to locals, this is undermining the role of local Maldivians in determining what food to produce, at what price to sell, and to whom.

Scholars such as Zurek et al. (2022) and Béné et al. (2023) argue that studies of food system resilience are best addressed in response to a clear shock or stress, as shown here in the context of the COVID-19 pandemic. Studies (Farrell et al., 2020, Hassan, 2020, Béné,

2021, Chiwona-Karltun et al., 2021) have argued that food systems in SIDS were impacted negatively by the pandemic, due to their high dependency on imports and weak local food systems. For example, a study by Ferguson et al. (2022) found that food availability was severely constrained (by 65-68%) in Papua New Guinea (PNG) and Tuvalu during the initial days of the pandemic, due to shortages in imported foods in local stores and disruptions to fish markets. However, in the Maldives people's perceptions of the impacts and severity of the COVID-19 pandemic on food security show alternative accounts. While there were food systems threats – e.g. initial disruptions to trade and shipping which delayed food imports, increasing food prices, internal disruptions to transport and food supply delays, panic buying leading to temporary shortages in key food ingredients, and loss of income for farmers and fishermen due to closure of markets (i.e. tourist resorts, global fish markets) - these were swiftly managed through coordinated and collaborative efforts by all actors, with a key role played by the government. Next, Chapter 7 evaluates in greater depth how these multi-scalar risks and challenges, including the COVID-19 pandemic, are addressed by actors across different levels of governance

CHAPTER 7
NAVIGATING FOOD SYSTEM CHALLENGES AND MAINTAINING RESILIENCE

Chapter 6 discussed the diverse, interconnected risks and challenges affecting everyday food systems in the islands. These included geopolitical tensions leading to volatile food and fuel prices, climate change impacts at both global and local scales, resource scarcity, diminished local food quality, an expanding tourism sector, weak regulation and implementation of policies, and the COVID-19 pandemic. Apart from the abrupt shocks and disruptions brought about by the COVID-19 pandemic, people of Felidhoo and Magoodhoo Island perceived these risks and challenges as part of their everyday lives in the islands. These diverse risks, stemming from both global and local origins, impact food systems across the islands and resulting in uneven consequences in terms of access, availability and quality of food for local people, populations and actors. In examining the specific case of the COVID-19 pandemic as a sudden shock to the everyday food system in the islands, Chapter 6 illustrated that despite the initial disruptions the impacts were quickly mitigated.

This chapter addresses the third research question: 'How do the government, local councils and communities respond to multi-scalar risks and build and maintain food system resilience?' As discussed in Chapter 2, resilience in food system literature draws upon the principles of socio-ecological systems (SES) (Bene, 2020, Zurek et al., 2022, Béné et al., 2023). This chapter reflects on food system resilience, defined as the capacity of actors (individual and institutional) to maintain, protect or successfully recover the key functions of the system (i.e. ensuring sufficient, appropriate and accessible food to all) despite disturbances (Béné et al., 2023, Tendall et al., 2015). Human actors enhance food system resilience through their absorptive, adaptive and transformative capacities (Béné et al., 2023). Resilience manifests across multiple levels of the food system, encompassing all

actors ranging from individuals to national to global networks (Zurek et al., 2022, Béné et al., 2023).

The first section (7.1) examines how the different actors across three levels of governance (state, local councils, and communities) adapt to the everyday risks and challenges to their food system highlighted in Chapter 6.1. The second section (7.2) provides examples of efforts across these three levels of governance to support food system resilience in the specific context of the COVID-19 pandemic. This chapter argues that building and maintaining resilience in dispersed or archipelagic island geographies requires: strong state action and decentralization of resources to the local level; coordination across scales through a multi-level, adaptive form of governance; involvement of public and private actors; and effective use of existing capacities, resources and knowledge in ways that address the needs of local communities.

7.1 Adapting to food system risks and challenges

This section examines the ways in which government, local councils and communities adapt to the everyday risks and challenges to the food system (highlighted in 6.1). At the government level, it sheds light on the mechanisms, institutions, processes and policies that address food system challenges and stressors. At the local council level, it shows the mediating role councils play between local communities and central government, in ensuring equitable and consistent access to food in times of disruptions. At the community level, it explores how people individually and collectively adapt to food system risks and challenges, highlighting agency.

7.1.1 Government

According to government officials, national-level mechanisms and interventions aim to ensure consistent, controlled, and adequate food imports. The State Trading Organization (STO) as highlighted in Chapter 5, is a pivotal actor that helps maintain affordability of food staples during market fluctuations and ensure their consistent distribution throughout the country, including at times of heightened demand for food such as during Ramadan. Shop owners in both Magoodhoo and Felidhoo Islands contend that the ‘STO Staple Agents Programme’ (detailed in Chapter 5) is a significant initiative that has helped them access consistent staple supplies at an affordable and equitable price, and that helps address

concerns around inequalities in access to staples between Malé and the local islands. According to STO officials, to ensure that people living in islands other than the capital city can access staples at the same controlled rates as in Malé, STO started covering the cost of transportation between the islands in 2019, by allocating handling agents to deliver staples to these islands. Hence, this programme seeks to diminish the disparities in staple prices between the capital island, Malé and the rest of the islands and ensure a consistent, equitable and cheap supply of staples throughout the archipelago, despite rapid fluctuation in market prices of these good due to both global and localized risks.

Moreover, the provision of extensive food subsidies for staples (rice, flour, and sugar) by the government, implemented through STO, is a keystone mechanism for maintaining price and affordability consistent throughout the islands (See Chapter 5). These blanket subsidies ensure staple foods remain affordable and accessible to everyone including the tourist sector and the growing expatriate population. An NGO representative affirmed the significance of the staple subsidies in enhancing equitable access to key food sources in the country:

> ...the main reason why the normal individual does not struggle much is because staples are heavily subsidized by the government and sold at controlled prices. So, the kind of privilege is important to highlight. (Sharif, NGO representative)

STO also strategically procures key food commodities through trade partners, effectively stabilizing markets and making them available at a lower and controlled price to the public. An STO officer attests to this market-stabilizing role, emphasizing the institution's adaptability and resourcefulness in times of sudden disruptions:

> We usually bring perishable goods such as onions, potatoes, and eggs only during Ramadan period or unless there is a need in the market. By this I mean, for example if the price of a certain key ingredient skyrockets, we will bring those to stabilize the market. For example, last Ramadan we brought lemons because the price skyrocketed. That was the first time we imported lemon. This is done on a needs-based strategy. If we see the need to stabilize the market then we bring that in. (Sajida, STO)

A private food trader, echoing the above narrative, attributed STO's capacity to play this pivotal market-stabilizing role during high-demand scenarios and emergencies to its government ownership. He stated, ‘STO's majority government ownership affords it the

privilege of receiving foreign currency at a controlled rate, in contrast to private traders who only receive 30% of their payments through this lower rate' (Aman, Food Trader). At the same time, they are able to quickly utilize bilateral agreements and connections with other countries such as India to bring in cheap food ingredients when in demand. Traders explain that having a State-Owned Cooperation is critically important for the Maldives, as it can effectively alleviate market volatility during periods of elevated inflation and global instabilities. In 2020, STO strengthened the ability of the Maldives to navigate global logistics and supply chain challenges through the acquisition of its own shipping liner, the Maldives State Shipping (MSS). This strategic move occurred during the pandemic, which significantly helped traders alleviate supply chain disruptions (see section 7.2.1).

STO also maintains a diverse stock of key food ingredients and these ingredients are sourced from various countries and suppliers (as mentioned in Chapter 5). This strategic approach enables them to promptly adapt to volatile food trade dynamics by switching between suppliers and source countries if their usual supply becomes costly or difficult to obtain. This ability to switch between suppliers and source countries is immensely valuable in ensuring a consistent supply of food, despite the anticipated challenges highlighted in Chapter 6:

> If you observe the food products available in our supermarkets, you will notice diversity in brands of key food items. We do not rely on one brand of a product; instead we offer various brands and varieties of the same food item [See Figure 7.1]. For instance, when it comes to rice, we stock different brands from different countries, such Pakistan, Thailand and India. This way, if there is a problem in one place, we have alternatives readily available. (Sameeha, STO)

Figure 7.1: Diverse brands of rice in the main STO supermarket in Malé

While a majority of government-led interventions aim to stabilise markets, reduce impacts of global shocks, and ensure affordable and consistent food, there are some longer-term strategic interventions to reduce import dependency. For example, the government aims to reduce import dependency and foster local productivity by encouraging more farming in the local islands. One such initiative is the Cooperative Society Initiative, introduced in 2008 to strengthen local food networks and foster subsistence farming and production. Magoodhoo Island embraced this initiative, establishing a Cooperative Society with widespread participation from its residents. Under this initiative, the Society was allocated a substantial land area for farming, encompassing innovative techniques such as hydroponics, conventional farming, and poultry farming (Magoodhoo Cooperative Society) and selling their produce to nearby resorts in addition to the Malé market. However, despite an encouraging start, the Cooperative Society's productivity declined over time, making it nearly non-operational by 2021/2022. This decline was attributed to various factors, including the challenges of sourcing feed for poultry farms during the pandemic and internal management issues.

Efforts persist to reduce import dependency and foster local production through a new State-Owned Enterprise (SOE) framework introduced in 2019; Agro National Cooperation (AgroNat). This programme is targeted at larger, agriculture-intensive islands and does little to support the food security of smaller islands such as Felidhoo and Magoodhoo. An AgroNat representative said this programme encourages people with land to register for 'contract farming'; they then receive a two-year contract, along with equipment and fertilizers to farm. Guided by agronomists, farmers cultivate crops from a list of 17 items identified by the Ministry of Fisheries, Marine Resources and Agriculture, based on local demand. Upon harvest, AgroNat collects items and transports them to markets, providing farmers with a reliable income stream, free from logistical hassles. Farmers expressed mixed views about the effectiveness of this programme. A woman farmer in Magoodhoo Island said she likes the new programme as it guarantees that her products will be bought by the SOE at a fixed price:

> The good thing is no matter how much the quantity is, AgroNat gives us the assurance that they will always take the items at a fixed price and sell the goods for us. They even take slightly damaged crops too. So, I am happy to be a part of this initiative and it is an added security for me. (Lubana, Farmer, Magoodhoo Island)

Magoodhoo Women's Development Committee (WDC) is actively involved in the AgroNat scheme, primarily focusing on cultivating watermelon (See Figure 7.2). Women on the committee, expressed pride in their involvement in the initiative and said they feel empowered to grow produce, diversify their livelihoods, and generate income for the committee. Naeema, a member of WDC in Magoodhoo Island, reported that their initial batch of watermelons yielded roughly 800 kgs and the committee was able to generate a good income through the scheme.

Figure 7.2: WDC watermelon farm in Magoodhoo Island (Source: Magoodhoo Women's Development Committee)

However, a farmer in Felidhoo Island shared concerns that these programmes are not beneficial to people such as her who have limited space in their backyard; such interventions are targeted at those with lots of land, knowledge and capacity to engage with farming. As Samiyya explained, 'AgroNat is not for people like us. Yes, they give us equipment, fertilizers and they even do training. But where is the land to do so? It is not for backyard farmers like us' (Samiyya, Farmer, Felidhoo Island).

Similar concerns were raised by residents on the efficiency of state-level policies in addressing climate-related risks to the food system. The recently ratified Climate Emergency Act (9/2021) aims to enhance climate resilience and facilitate adaptation to climate change in various aspects, including its impacts on agriculture, fisheries and food security, by strengthening the legal structure and guidelines for such interventions. This act involves the fisheries and agriculture sector in monitoring and publishing data on climate change-related impacts on food systems. Such data could pave the way for more informed policy reforms to mitigate impacts. Moreover, the Maldives' Nationally Determined Contributions (NDC) emphasize the significance of "Enhancing Agriculture and Food Security" and advocate for strengthening climate risk insurance mechanisms. These

mechanisms would build resilience against asset and livelihood losses associated with climate change to both farmers and fishermen (as highlighted in Chapter 6). Additional policies involve expanding investments in public food reserves and regional distribution networks and promoting climate-smart technologies to address production challenges posed by climate change.

While climate policies exist, implementation is weak as pointed out by a civil society official: 'It is not that we do not have policies and some great interventions on paper. We do… but the question is whether or not it actually happens on the ground' (Sharif, NGO Representative). An official from the National Disaster Management Authority (NDMA) shared similar concerns on the limited capacity of governments to address loss of livelihood assets associated with climate disasters, due to lack of mandate to do so:

> NDMA does not have the mandate to compensate for any losses beyond damages to infrastructure and people's assets. Even then we can only give a fragment of the damage caused. This does not cover any livelihood related losses unfortunately and you can imagine if we ask someone for information on something we cannot compensate for, it will be very difficult. They used to report to us but when they realized that we are not able to help them out in this regard – so then the reporting decreased significantly. (Zuhaira, NDMA)

There are also mixed views on efforts to tackle food-related resource scarcity, e.g. resource-efficient and space-efficient farming practices such as hydroponics and vertical farming. These initiatives are viewed as more suitable for large-scale rather than smallholder farmers. A farmer from Magoodhoo Island, reflecting on her experience with AgroNat, expressed reservations about the initiative's impact. She pointed out that while there are individuals with knowledge and interest to engage in farming, the limited availability of land remains a significant obstacle for islands like Magoodhoo (as highlighted earlier). This limitation dampens the enthusiasm of potential farmers to effectively engage and learn innovative agricultural techniques:

> It doesn't work properly because we don't have sufficient land. There are people who know farming, who want to do farming and who have potential, but what to do? These high tech, innovative mechanisms might work for other agriculture intense islands, but not for us. (Zareena, Farmer, Magoodhoo Island)

The prospect of using uninhabited islands for agriculture was acknowledged by local councils as a means to tackle land scarcity, but these lands are prioritized for tourism limiting their availability for agricultural purposes. During one insightful conversation, a member of Felidhoo Council emphasized the value of ocean resources for sustenance and livelihood and lamented the increasing reliance on tourism for generating income:

> This atoll, [Vaavu atoll which Felidhoo Island belongs to] comprises 18 islands; five are inhabited, eight islands are allocated by the government for resort development. This highlights the prioritization of tourism development despite the potential agricultural value of island land, particularly in times of disrupted food imports. (Hassan, Council representative, Felidhoo Island)

Similar concerns were raised regarding the government's plans to alleviate space-related constraints at the seaports and the North Harbour in Malé. Port officials acknowledged the potential of government plans to build a bigger new port, the Gulhifalhu Port Project. However, slow progress has left port officials uncertain as to whether the new port will be constructed anytime soon:

> The space here at the port is too limited. Even if we pay extra attention, accidents also do happen here and it is not a very safe working environment either because of the limited space. There is no way we can even expand here; we have no space. So we really need to relocate the port elsewhere. There is no other solution to this. However, government plans for the new port project [Gulhifalhu Port Project] keep changing and gets delayed with every administration. Not sure when this will happen, but there is hope and I think we finally have some concrete plans in place. (Najiya, North Harbour Official)

Another critical risk to the Maldivian food system (discussed in Chapter 6) is the impact of the rapidly expanding tourism sector such as limited employment of younger people in food production sectors as they seek employment in the tourism sector. Noting that only 6% of currently registered farmers are classified as youth, AgroNat has introduced advanced farming technologies and educational programmes such as undergraduate modules or certification courses in agriculture, (Safa, AgroNat). These initiatives aim to encourage more youth participation in food production sectors.

Officials from the Maldives Food and Drug Authority (MFDA) spoke of existing and planned interventions to enhance regulatory measures, monitor the quality of food imports

and local production, and enhance food safety standards. One such intervention is the Good Agricultural Practice (GAP) scheme - developed in collaboration with the Ministry of Fisheries, Marine Resources and Agriculture - that outlines safety standards for locally produced fruit and vegetables. However, participation is voluntary and few farmers have adopted these standards. The MFDA and the Ministry of Fisheries, Marine Resources and Agriculture seek to engage local communities and island councils, encourage wider adoption and implementation of the GAP scheme, and monitor compliance. There is an acknowledged need for community involvement, in successfully weaving out such schemes, given the highly dispersed nature of the islands (Nihad, Ministry of Fisheries, Marine Resources and Agriculture).

Government officials explained that the absence of a legal framework for food safety (a draft legislation exists but is yet to be ratified) makes it difficult to address low-quality food importation. The draft legislation aims to centralize food-related inspections and clarify responsibilities among various stakeholders. However, government officials argue that despite technical capability to strengthen food safety, lack of resources remains a significant hurdle (Migdad, Maldives Food and Drug Authority).

This section has discussed government-led interventions that play an important role in addressing food system risks and challenges (as highlighted in Chapter 6). Robust mechanisms exist to address and mediate food system shocks and stressors, but efforts to adequately address more localised risks and challenges remain contested and weak. Nonetheless, actors at local scales seek to address food system challenges and sustain and develop resilient food systems.

7.1.2 Local Councils

As discussed in Chapter 4, the Maldives endorsed a Decentralization Act in 2010. This legislation established elected local councils, granting them autonomy and resources to manage the local affairs of their respective jurisdictions, within their island and atolls. These councils play a crucial role in shaping the overall structure of food systems, especially when addressing disruptions. This section demonstrates the mediating role local councils play between the state government and communities in ensuring equitable and consistent access to food within their jurisdictions.

Local councils often play an important coordinating role working closely with businesses and shop owners in their islands: for example, during delays in transportation due to malfunctions, damage to infrastructure and extreme weather events (as highlighted in Chapter 6) they coordinate with local shop owners to organise food rationing measures on the island. For instance, Felidhoo Council representatives described their response to a recent flour supply delay caused by a storage issue at STO:

> Recently, STO had some issues with their flour warehouse, leading to delays in supply. Even then, we strategized with the shops and limited supplies per household [based on the number of people in each household]. This is to ensure that everyone has access to it until the next shipment arrives. (Adam, Council Representative, Felidhoo Island)

Another example highlights the proactive role of the Magoodhoo Council in finding alternative transportation networks during disruptions due to boat maintenance or rough seas:

> We receive supplies once every week. Even in cases where our regular supply boat undergoes maintenance or is delayed due to rough seas, we arrange for alternative boats from other islands to bring in supplies. This ensures that we do not face significant difficulties. (Ishaq, Magoodhoo Council)

Councils also play a proactive role in mitigating supply chain disruptions using their own resources. According to residents of Magoodhoo Island, during the dry season of 2022 when most households depleted their rainwater reserves, the council provided each household with a case of bottled drinking water to alleviate the additional expense:

> These days almost all houses have run out of rainwater. As a result, most households have resorted to purchasing bottled drinking water. In response to this challenge, the local council took a commendable step by providing each household with a case of drinking water at their own expense. This initiative proved to be immensely helpful. (Seema, Magoodhoo Island)

Residents of Magoodhoo Island showed strong appreciation for such interventions by their council in times of food shortages and disruptions.

Councils also play a vital role in monitoring and maintaining stocks of staples. Felidhoo Island Council regularly record stocks of essential food items enabling them to effectively manage delays or disruptions. They monitor stock levels in all island shops, keeping track

of items such as rice, sugar, and flour, to assess how long stocks will last. A similar approach is taken in adapting to circumstances such as adverse weather conditions that hinder stock replenishment in the islands, promptly bringing in additional supplies before reaching a specified threshold. This pre-emptive planning proves highly beneficial in sustaining stock levels and preparing for adversities.

However, there are concerns about the lack of adequate island-wide food storage, prompting councils to explore the possibility of establishing an emergency storage or reserve on the island. Despite financial challenges, the council is working on developing a plan for this initiative:

> We are now thinking of establishing an emergency storage for the island, specifically to deal with emergency situations. The issue is we don't get much income – so this is the challenge for us. We are hoping to have a plan for this at least. (Adam, Felidhoo Council)

The councils were optimistic about recent amendments to the Decentralization Act that would grant them greater authority to design local policies tailored to the specific needs and priorities of residents (See Chapter 4). With these amendments, local councils are encouraged to prepare island-specific land use plans that address local challenges such as establishing secure and efficient transportation and storage facilitates as well as timely delivery of essential items more cheaply and reliably (noting that food transport is currently monopolised by limited private supply boats, as described in Chapter 6).

Local councils also have autonomy within their respective jurisdiction to respond to resource scarcities. An illustrative example is provided by the Magoodhoo Island Council, which recently designated 55 plots of land for residents. While these plots are officially registered as residential, the majority of residents use them for farming purposes. Every household in the island now has an additional piece of land (See Chapter 5), with the majority of the population having access to plots suitable for cultivation (Ishaq, Magoodhoo Council). This allocation of additional land by the local council provides added food security and income. Residents appreciate having land to grow produce, particularly during periods of disruption and heightened demand such as Ramadan. When there is surplus grown, island councils also play a role in assisting local farmers to sell their produce. For instance, Magoodhoo Island is renowned for a specific 'Malaysian' breed of

coconut which is sold to the Malé market and nearby resorts. In instances where individuals encounter difficulties selling their coconuts, the council steps in as an intermediary, connecting them directly with potential buyers as mentioned by a farmer in Magoodhoo who struggled to sell her coconuts during Ramadan:

> Sometimes it becomes difficult to sell within the island, when everyone grows the same item as the market gets saturated. Last Ramadan I had similar challenges, but thankfully I reached out to the council, and they helped me get in touch with a nearby resort who bought my coconuts at a great price. (Shafiya, Farmer, Magoodhoo Island)

This section has demonstrated the role played by local councils as an intermediary between the state and local island communities, in responding to food system risks and challenges. The Decentralization Act has granted them sufficient autonomy over local resources to manage risks in a way that best meets the needs of local communities.

7.1.3 Communities

While the above sections have explored how central and local governments respond to food system risks and challenges, this section explores how local community members - such as shop owners, farmers, fisherfolks and other individuals - respond to such risks and challenges.

In Magoodhoo and Felidhoo Islands, residents adapt and prepare for the consequences of inflation and fluctuations in food prices. For example, to avoid paying high prices for food in local shops, people directly procure food items from Malé (via online payment to wholesale shops that load orders onto supply boats). When there are delays in supply boats, they ask friends and family in Malé to buy food items and load them onto passenger ferries. A woman in Felidhoo Island stated that she always chooses to bring food items from Malé because local shops add costs such as transportation fees as well additional profits to the already inflated price:

> We can get almost everything from the shops on this island as well. However, it is much more expensive, as they will add profits to every item separately and make up for the transportation fees. So, it is much cheaper to buy in bulk and get it supplied directly from Malé and that is why we do this. (Fathimath, Felidhoo Island)

However, buying directly from Malé can have knock-on negative repercussions for local businesses in the islands. Local shop owners noted that they take these food price-related concerns into account when placing orders (see Chapter 5). They mitigate effects of price fluctuations by placing orders in small quantities and focusing on key ingredients with long shelf-lives. Their ordering decisions are based on their experiences and understanding of which items are frequently purchased from their shops:

> You would notice that I do not even open my shop throughout the day. I do not get a lot of customers. Sometimes, if someone wants something, they will give me a ring, and I will come and open the shop and sell whatever they want… That is why I do not bring a lot of varieties of food items to sell; I only bring items that people mostly buy from me, and in small quantities. Otherwise businesses in these islands won't work. I don't get much of a profit, honestly, but I enjoy doing business. That is why I am still doing this, not for profits. (Shah, shop owner, Magoodhoo Island)

The role of social networks and connections in helping people adapt and navigate everyday challenges to their food systems is significant in both Magoodhoo and Felidhoo Islands. For instance, Naufal, a resident of Magoodhoo Island, explained how his brother travels to Malé every week to buy weekly supplies and then loads them onto the supply boat for his family (Naufal, Magoodhoo Island). Similarly, Mariya, a shop owner in Magoodhoo Island, brings food stocks to her shop by using her family ties to expedite the process. She stated, 'My kids are in Malé now, so what I do is send the list of items I need to them…then they will buy the items and load them onto the boat' (Mariya, Shop owner, Magoodhoo Island). Establishing social connections with operators of supply boats also proves beneficial for fishermen and farmers, making it easier for them to sell their produce. Ismail, a former fisherman in Felidhoo Island, highlighted the significance of their friendship with the captain of the atoll supply boat that facilitated him to sell his fish paste to Malé market, without him travelling every week to do so.

This community and social cohesion underpin trust between residents and shop owners in the islands. Many retailers extend credit to residents, understanding income-related challenges they might face in purchasing food. Mausoom, a shop owner in Felidhoo Island, shared his perspective on providing food on credit, considering it a way of supporting each other during difficult times:

> We usually give food items on credit. Some will pay at the end of the month, some might not. Even now, we have around MVR 30,000 [USD 1945] pending - which is enough to buy supplies for one time. But what to do, this is how we do business in these islands, and this is how we look out for each other. (Mausoom, shop owner, Felidhoo Island)

This important role of social capital was evident during a conversation with a family who had relatives working in a family-owned fishing vessel as they had more consistent access to fish in comparison to those families who depend on fish markets. A woman in Magoodhoo Island explained:

> We are always able to get enough fish because we have a family-owned tuna fishing vessel. So, we do not feel any challenges in getting fish. I even make my own *rihaakuru* [fish paste]. We never buy *rihaakuru*, we always get enough fish to make this in our house. (Samiyya, Magoodhoo Island)

People also bulk buy food items from Malé, ensuring they maintain stocks or reserves sufficient for at least a few weeks to a month. This prevents disruptions to food security and ensures a reliable supply of food for the household. Bulk buying, as with buying foods from wholesale shops in Malé, is also more economical than buying food in local island shops. Residents in both Felidhoo and Magoodhoo Islands place bulk orders with wholesale shops in Malé, as articulated by Lubna:

> I usually bulk buy key food supplies from Malé, and we usually have enough stock to last for one month in the house. It is cheaper and also much easier that's why we bring supplies this way from Malé. It also makes sure that we always have a contingency stock at home in case something happens. (Lubna, Magoodhoo Island)

Storing food surplus ensures that even if supplies get disrupted, island residents will not run out of food. Similarly, shop owners ensure that they keep a contingency stock of key food staples. A conversation with the STO staple agent in Felidhoo Island revealed that he aims to keep at least an additional one-month worth of rice, sugar and flour available for the entire population of his island. Having this contingency stock provides a buffer in case of unexpected delays in supply and distribution (Ali, shop owner, Felidhoo Island).

However, adaptation measures depend on people's physical condition, age and income. For example, a 76-year-old man – Ahsan - in Felidhoo Island highlighted that not everyone can afford to travel to Malé or has the connections and resources to place direct orders. Ahsan

emphasized that he relies on local shops on the island despite the additional costs associated with buying food from the island:

> Food is so expensive to buy from the island…but what to do, not everyone can afford to go to Malé or have the necessary connections, technology, or strength to place orders online or physically go and get foodstuffs from these. I am very old now, I can't travel. (Ahsan, Felidhoo Island)

In seeking to improve the quality of locally produced food, as highlighted in Chapter 6, farmers in the islands are using homemade natural fertilizers, based on local knowledge and ingredients that are available locally. For example, Hamdha, a farmer in Magoodhoo Island uses locally available products as fertilizers such as banana skin, eggshells, fish bones and charcoal, which are chemical-free and safe. Similarly, in Felidhoo Island, food waste is often used as fertilizers by subsistence producers and is perceived as a more 'cost-effective and sustainable way of growing fruits and vegetables, free from chemicals and pesticides' (Abdulla, Felidhoo Island).

In adapting to abrupt changes in climate and weather, farmers capitalise on their lived experiences, knowledge and predictions of weather to make plans ahead and prevent massive damages to their crops. For example, a farmer and member of the Magoodhoo Cooperative Society explained:

> You know in the Maldives, we get a lot of seasonal rain during certain times of the year. These are more unpredictable now, but years of exposure to such precarity and challenges have enabled us to somewhat predict and plan for those monsoonal changes. We prioritise growing crops that are best suited for the particular season and plan accordingly. That way we can ensure a continuous supply of local produce throughout the year. (Naeem, Farmer and Cooperative Society Member, Magoodhoo Island)

Similarly, fisherfolk also still depend on traditional knowledge and lived experiences in navigating seasonal and monsoonal shifts in the availability of fish. Hamid, a 67-year-old tuna fisherman in Magoodhoo Island shared his long experience fishing and the significance of local knowledge and lived experiences in adapting to changes and ensuring efficient fishing:

> Based on the knowledge passed down by our ancestors and my experiences fishing since the 1980's, I can say that tuna catch is best during certain times of the

> month,'*kalhu foiy mathee'* [based on moonlight] which usually falls on the 25th, 26th and 27th nights of every month. We notice an increase in tuna fish during this time of every month. Similarly, there are also certain times of the month and year when the seas become rougher. With years of experience, I can better plan my fishing trips to coincide with these favourable conditions. (Hamid, Fisherman, Magoodhoo Island)

This section demonstrated the ways in which different community-level food system actors respond to everyday risks and challenges to food systems. Residents procure food items directly from Malé, leveraging social networks and connections to maintain and rebuild food supply. They remain vigilant to food system disruptions by stock-piling food reserves in their homes. Local shop owners also maintain significant buffer stocks of key food staples in the island. Moreover, farmers and fisherfolks find traditional knowledge useful in navigating seasonal shifts to subsistence production and fishing.

7.2 Resilience in the wake of the COVID-19 pandemic

The COVID-19 pandemic provides an important case study through which to examine how different actors, at various levels of governance, build food system resilience during a sudden shock. As food system scholars state, it is important to explore resilience measures of complex socio-ecological systems (SES) in response to a well-defined disruption (Zurek et al., 2022) as this provides an opportunity to gain an in-depth understanding of how different actors enhance or limit resilience. This section focuses on government, local council and community responses and coordination to this global shock, highlighting multi-level coordination and governance where institutions and actors across the different scales of the food system (global – national – local) played equally significant roles.

7.2.1 Government

The central government was instrumental to maintaining food system resilience during the pandemic (as highlighted in section 6.2). Food traders commended the coordination role undertaken by government to establish an online platform to stay in touch with food traders in the country, address their concerns, and expedite their requests such as permits for deliveries. According to the food trades interviewed, the Ministry of Economic Development played a key coordinating role in facilitating this:

> The Economic Ministry called all the key food importers to have a chat about the COVID-19 situation. We were all added to a WhatsApp chat group. We were asked to share the challenges we were facing and how the government could help us. We got foreign currency easily through the State Bank and enabled us to make overseas payments easily as the Government sanctioned it for the key food importers. Permits to go out for deliveries were easily granted for our staffs as well. (Haris, Food Trader)

In addition to this coordinating role, the government also eased logistical arrangements by relaxing protocols to ensure unhindered food supply and distribution at the ports and harbours. For example, at the Malé North Harbour, there were reduced bureaucratic procedures for incoming shipments such as relaxed checks and balances on whether the boats had required documentation, allowing for rapid unloading and reloading of essential food commodities. According to food wholesalers and retailers, these relaxed regulatory measures contributed significantly to maintaining the overall functionality of the harbour and at the same time facilitated consistent food supply across the archipelago. A North Harbour official explained this was one reason why the harbour was operational during the pandemic and food was supplied to the rest of the atolls and islands in a reliable manner:

> What we did was no matter what the condition of the vessels were, we registered them with a temporary registration despite missing documentation and allowed them to come in. This was to make sure that the food items they brought are off-loaded as soon as possible without them going bad and also allow them to re-load supplies from Malé. (Azza, North Harbour Official)

Special logistical arrangements were also negotiated with the STO to expedite the redistribution of staple foods from Malé to the other islands. A North Harbour official explained that STO managed the distribution of food staples by having staff stationed at the harbour, who delivered staple food supplies directly to the boats when they arrived. This ensured that no one stepped out of the boat to collect the staples, thus, maintaining social distancing while ensuring a swift supply of food staples to the islands:

> STO Staple stocks were brought and kept within the harbour premises and their staff delivered them to vessels as per orders placed online by their agents in the islands, when the respective island or atoll boat arrived in the harbour. STO was very flexible and ensured that this new arrangement went swiftly, which helped ensure food supply to all islands and maintain safe social distancing. (Azza, North Harbour official)

A supply boat captain attributed the success of STO in reorganizing mechanisms to ensure a fair and equal distribution of food staples to atolls and islands, to its Staple Agent's Programme (as highlighted in Chapter 5 and Section 7.1.1):

> I would say that one of the reasons we survived the COVID-19 situation was because we had the Staple Agents Programme established and working well…Because we already had these decentralized mechanisms in place, it allowed STO to work around a mechanism for us to place orders and get supplies onto our boats much swiftly. (Adham, Supply Boat Crew, Magoodhoo Island)

Officials from STO agreed that having the Staple Agent's Programme helped them monitor stocks and ensure all islands had a consistent supply of food staples throughout the pandemic:

> Otherwise [speaking about the Staple Agent's Programme], I do not know how we could have supplied staples to all the islands during the pandemic. The staple agents were crucial in recording the stock left on their island and ensuring enough was ordered to match the usual demands of the island as well. So, this helped extremely for us to keep track of stocks and ensure a consistent supply. (Sajida, STO)

STO's capabilities during the pandemic were increased through the acquisition of their own shipping liner, the Maldives State Shipping (MSS) (see Section 7.1.1). This strategic move provided STO and the state with a mechanism to counteract global logistical and transportation challenges. MSS played a crucial role in mitigating delays in shipments and international trade disruptions during the pandemic. STO officials and food traders agreed that the acquisition of a state shipping liner afforded greater flexibility over shipping routes and schedules, thus compensating for potential missed or delayed shipments:

> Let's say if a shipment of staple food gets delayed, the vessel will adjust their schedule for us by delaying their departure date to fit the change in schedule and make sure the shipment is connected to this vessel. So, it was a true blessing that we managed to start this shipping line just before Covid. It became quite easy for us to manage such trade disruptions. On the contrary, if we had to work through other shipping liners during the pandemic, we might have been in a very grim situation. (Sameeha, STO)

STO officials also confirmed that they had commenced stockpiling much earlier, anticipating a major global pandemic, when the virus began spreading in other parts of the world. This proactive planning helped the government to ensure sufficient stocks of key

food ingredients and staples in the country, before the virus reached the Maldivian shores, as detailed by an STO official:

> When the virus first started spreading elsewhere, the government had already formulated a plan with us [STO]. It was decided that STO would procure enough basic necessities, including food and medicine, and distribute them to households during a lockdown. We were prepared to that extent. We began working a month before the pandemic hit us. The first nationwide lockdown happened on the 16th of March, but we had already started placing orders and stockpiling key items as early as February. So we were ready for this. (Sameeha, STO)

In addition to immediate, short-term recovery measures, with the lessons learnt through the COVID-19 pandemic, STO has embarked on longer-term strategic interventions such as as Flour Mill Project. According to STO officials, this project is set to be established on one of the northernmost islands in the Maldives, aiming to reduce dependency on staple imports, particularly wheat. STO envisions sourcing wheat from Turkey or Russia, intending to achieve self-sufficiency in flour production for the entire Maldivian population. Sameeha, an STO official, explained the rationale behind this project:

> The rationale behind this project is to reduce import dependency of staples and also to supply fresh products to consumers. At the same time, we also have an issue with storage of wheat flour. We cannot store flour for too long as it will only stay fresh for six months maximum and goes bad quite easily. So if we can get our own flour mill, we are hopeful that at least it will reach the consumers within one month at least and reduce pressure on storage as well. (Sameeha, STO)

The Maldives-India bilateral relation, mentioned in Chapter 5, also emerged as a pivotal factor in easing the adverse impacts of the pandemic. India responded to the pandemic immediately, by providing the Maldives with 580 tonnes of food aid as in-kind assistance (HCI, 2021). This generous provision encompassed parboiled rice (200 tonnes), wheat flour (140 tonnes), sugar (80 tonnes), yellow dal (120 tonnes), onions (26 tonnes), and potatoes (14 tonnes) (HCI, 2021). Government officials acknowledged the robust diplomatic relationships between the Maldives and India as a key factor that sustained food system resilience in the Maldives during the pandemic: ‘If we didn't have good relations with India or Sri Lanka or if we didn't have an India First Policy, India wouldn't be so willing to share their food with us’ (Farzana, Ministry of Fisheries, Marine Resources and Agriculture). Food traders also attested to the notable role of the Maldives-India

relationship in addressing the supply chain disruptions they faced during the pandemic. An STO officer recounted the experience of importing perishable items from India during the pandemic. She highlighted the diplomatic ties and long-standing connections with India as a foundational factor that helped Maldives quickly recover from the immediate impacts of the pandemic:

> Since we bring perishables like onions, eggs, and potatoes from India, it was a lot easier because we have good diplomatic ties with them. Even when India was in a lockdown, they somehow found a way to send us the supplies without much interruption. (Sajida, STO)

The pandemic led to income losses for farmers and fishermen due to closure of markets as detailed in Chapter 6.2. Additional social safety nets were introduced for those who lost their source of income due to the halt in fish export, tourism and difficulties in selling local produce due to the closure of markets. According to the Ministry of Finance, this was facilitated by foreign aid Maldives got through its development partners such as the World Bank (Ministry of Finance, 2020). Additionally, the government introduced subsidies for essential utilities such as water and electricity, to alleviate the expense of basic services.

However, perceptions of the efficacy of these safety nets varied among residents of Magoodhoo and Felidhoo Islands. Although these programmes were intended for nationwide implementation, some individuals had limited awareness of the initiatives, and there were bureaucratic barriers hindering access to funds. Notably, individuals in primary food-producing sectors, like farmers and fishermen, were often older and less acquainted with online application systems; they faced difficulties in applying for the funds. Moreover, small-scale fishermen encountered challenges due to a lack of essential documentation, such as licenses, when seeking income support. A government official acknowledged such challenges that may have disadvantaged smallholder fishermen from equally benefiting from the income support scheme:

> COVID-19 impacted fish exporters significantly. Government assistance was given to those fishermen registered under the covid relief fund that was established by the Economic Ministry. However, because licensing was not mandatory for all fishermen, many small-scale fishers did not have a certification that confirmed their status as a fisherman unless they were tuna fishers and exporters. This prevented

> small-scale fishermen from benefiting through this compensation plan. (Nishana, Ministry of Fisheries, Marine Resources and Agriculture)

Nonetheless, residents indicated that the government's decision to maintain the salaries of all civil service staff across the archipelago helped ensure a consistent flow of income throughout the pandemic, particularly in atoll capitals. This reportedly helped many residents, including on Felidhoo Island, where residents could rely on their regular income and afford food. As the atoll capital, the majority of Felidhoo Island's residents are engaged in civil service employment. The Felidhoo Island council elaborated on this situation:

> The main reason why the people of this island did not face many challenges during the pandemic is because 95% of our residents are civil servants. So, they got paid throughout and there were no income losses. (Adam, Island Council, Felidhoo Island)

Thus, during the pandemic, the central government of the Maldives played a crucial role in maintaining the resilience of the food system, by coordinating with food traders, streamlining logistical processes at ports and harbours and establishing special arrangements with STO for the distribution of staples equally throughout the archipelago. At the same time, existing bilateral connections with India facilitated the import of essential food items without much disruption. Additional safety nets in the form of income support schemes and subsidies were provided to ensure a consistent flow of income for residents.

7.2.2 Local Councils

Alongside the central government, local councils played a significant role in re-organizing local island communities in ways that fit community needs. As elaborated in Chapter 6.2, the onset of the pandemic necessitated a nationwide lockdown, leading to a sudden halt to food transport networks, particularly affecting islands dependent on food shipments from Malé. The suspension of local ferries hindered both travel and ability to place orders for essential food items through established networks. Given this, local councils assumed a central role in reconstructing disrupted supply routes from Malé, by planning alternative connections. For example, in Magoodhoo Island, the council addressed this challenge by collecting shopping lists from every household and chartering a private vessel to travel to Malé as soon as conditions permitted. These items were procured on behalf of island residents and distributed to every house by using a task force led by council officers. A

woman interviewed in Magoodhoo Island praised these council efforts while highlighting the important role councils played in securing key food staples:

> During COVID-19, our council assisted us with loss of income and difficulties in getting food items. They made sure that we did not feel any challenges by making sure we had access to staples and main food items like eggs, potatoes, and onions. They also made sure the remaining stocks in the island were equally distributed to households. (Nasiha, Magoodhoo Island)

Magoodhoo council also reiterated that throughout the pandemic, they consistently made arrangements for residents and intervened to assist households facing difficulties in obtaining essential food items from Malé:

> If there were any items people needed from Malé, all they had to do was write or inform the council, and we would get it for them from Malé. The council will supply those to every household in need. So I would say that Magoodhoo citizens would not have felt too much difficulty in terms of food supplies during the pandemic. (Ishaq, Magoodhoo Council)

Local councils managed disruptions to food stocks by rationing household food supply, as required. According to the Magoodhoo Council, this helped them to control panic buying and ensure that all residents had a sufficient supply of food:

> Even when Malé went into a full lockdown, about twice during the pandemic, we paved the path for our island businesses in a way that they were able to maintain stock properly. We informed all buyers and businessmen in the island that, in a situation where the council restricts the amount of staples that can be sold to each household, the guidelines set by the council must be followed. This is because staples are a controlled food item crucial to every household. We instructed businesses to adhere to this guideline, and in case they didn't, we made it clear that their permit to sell staples would be retracted, and council would be responsible for the supply of staples thereafter. (Anaz, Magoodhoo Council)

Similarly, in Felidhoo Island, when fishing vessels from neighbouring islands arrived to trade fish, the council restructured operations to facilitate equitable access while adhering to the government's social distancing regulations. The council collected pre-orders from residents and had a task force that weighed out the fish brought by fishing vessels based on pre-placed household orders. Payments were made in advance on behalf of residents, with residents asked to make payments to the council by a deadline (Felidhoo Council).

Further, the local councils also coordinated with island shop owners and food suppliers, ensuring vigilant tracking of food staple availability, and making sure they placed timely orders with STO. A council member from Felidhoo Island elaborated on their role in maintaining adequate food stocks during the pandemic:

> Especially for staples, we were checking on a weekly basis with our Staple agent to ensure there were enough stock to meet the demands of our community. If the stocks were decreasing, we would work with STO and our agent to get enough as quickly as possible. (Adam, Island Council, Felidhoo Island)

The Felidhoo Island councillor also noted that the small populations of their islands significantly helped them to monitor the situation, delivering key food items to households and monitoring needs while also containing the virus.

This section has shown that alongside the central government, the local councils also played an equally significant role in reshaping island communities to meet their specific needs during the pandemic, ensuring steady access to food supplies. They helped communities rebuild broken supply networks, implemented rationing measures to control panic buying and ensured fair distribution of staples to all households. Close coordination and collaboration with local shop owners and businesses helped maintain track of food stocks in the island, while also closely monitoring the needs of the community.

7.2.3 Communities

At the community level, local shop owners (private sector) were found to play a pivotal role in working closely alongside the local councils, implementing rules and regulations applicable to their communities such as food rationing measures, and keeping a close eye on available stocks. The role of local shop owners and businesses often extended beyond their island to cater to nearby islands within the atoll. For example, on Felidhoo Island, one of the shops made arrangements to ensure equitable access to food stocks for all five inhabited islands in the atoll (Vaavu atoll). The owner of this shop explained that he split the operating hours into two segments: one dedicated to Felidhoo Island residents, and the other catered to orders from the remaining islands in the atoll. This ensured that residents from the other islands within the atoll minimised contact with residents of Felidhoo Island, while also ensuring fair distribution:

> COVID-19 happened unexpectedly for all of us. When the government invoked the first nationwide lockdown, we had a small window, that allowed us to quickly re-orient ourselves to this new situation. Although all transportation was put on halt between us and the capital island, we were still able to have some restricted travel between islands within the atoll. So my thinking was to ensure that all my customers were able to gain equal access to whatever was available to us, by equally distributing the items among the community. I also took into consideration islands that were more vulnerable in terms of food access and re-organized my regular hours to ensure they also had the opportunity to buy supplies from me. I did this in a way that did not hinder access to goods for Felidhoo residents while also providing goods for those in the other neighbouring islands. (Imthiyaz, Shop owner, Felidhoo Island)

Another example of the role of private shop owners in the islands came from Felidhoo Island; the owner of a shop in Felidhoo Island chartered a private vessel to transport essential food items to nearby islands facing food shortages. Similarly, fishermen from Felidhoo Island stepped in to help those having difficulty obtaining fish, with one repurposing his fishing vessel for tuna fishing that could be sold to island residents:

> During the pandemic, I couldn't go grouper fishing as there was no market to sell them to. So then I decided to use my fishing vessel, to go tuna fishing instead and bring it to the island and sell at a cheap price to the people in the island. I wanted to make sure the island has tuna without a challenge…. this way I also got some income to make up for the loss. (Mohamed, Fisherman, Felidhoo Island)

Residents revealed that food sharing between people and households was particularly important. A resident from Magoodhoo Island recounted her experience during the early days of the pandemic, illustrating how food sharing with relatives and neighbours became a lifeline:

> Initially we panicked and we had to survive with whatever was available. We had to share food with relatives and neighbours if they had enough to do so. Hence, food sharing between households is how we managed the crisis during these initial days. (Samiyya, Farmer, Magoodhoo Island)

Similar accounts of food sharing were evident when farmers chose to share their produce with friends, family, and neighbours, instead of trying to sell them. As a farmer in Magoodhoo Island explained, 'I had a lot of surplus watermelons, and I decided to gift them to my relatives, friends, and family in the island and even in Malé instead of trying

to sell them. I wanted to help people who were suffering' (Hamdha, Farmer, Magoodhoo Island). These food-sharing practices extended beyond individual islands, to inter-island interactions. For example, Magoodhoo council recounted their efforts to alleviate food shortages in neighbouring islands during the pandemic, by sharing food stocks in their island:

> Our neighbouring islands - namely Ribudhoo, Meedhoo, Hulhudheli residents - had food shortages. Once they get the permit to travel from their islands to us, they will come by in smaller boats and wait out in the lagoon area. We will then load supplies as per their lists and meet them by the lagoon in smaller boats and hand over the supplies. The supply list would have been sent off to the council earlier. We were happy to share our resources with them. (Samah, Shop owner, Magoodhoo Island)

Similarly, Abdulla, a resident of Felidhoo Island, commented on the remarkable spirit of sharing and social cohesion within the community. He said:

> The community in our island is incredibly close-knit, we always come together to support each other, and this solidarity was highly visible throughout the pandemic. We are truly blessed to be part of such a tight-knit and supportive community. (Abdulla, Felidhoo Island)

Some residents of Felidhoo and Magoodhoo Islands increased subsistence farming and fishing, as an additional source of food and income security during the pandemic. One resident of Felidhoo Island, who worked in a resort, temporarily resorted to reef fishing and selling catch on the island to compensate for income losses: 'fish is not only a cheap source of protein during COVID times but also an important source of income for everyone who has been left high and dry when the resorts and guesthouses closed down' (Ashraf, Felidhoo Island). Those who were already cultivating food items in their yards sustained reliable access to foods as compared to individuals dependent on store-bought goods. The council encouraged people to grow local foods and use locally-grown produce to supplement their food needs:

> One lesson that we learned through COVID-19 is actually the importance of fishing and agriculture for sustainable economies and livelihoods. I think every atoll needs to have at least one island solely for agricultural purposes, and people in that atoll can use the items from that island for their local consumption purposes. (Hassan, Council representative, Felidhoo Island)

A farmer in Magoodhoo Island reiterated the significance of having his own farmed produce as an additional source of security during the pandemic:

> I grow a lot of items like pumpkin, watermelon and brinjal in my backyard. During COVID-19, I had more free time and grew even more items. This gave me an added sense of security as I used most of it to consume. (Samiyya, Farmer, Magoodhoo Island)

Hence, at a community level, diverse actors including shop owners, farmers and individuals in Felidhoo and Magoodhoo Islands played instrumental roles in maintaining resilience. Collective agency and coordination were evident as different local-level actors, collaborated and shared food within the island and between islands. There is strong social cohesion and solidarity within the communities of Felidhoo and Magoodhoo Islands that has helped them build and maintain resilience during the COVID-19 pandemic.

7.3 Conclusion

In the Maldives, food system actors at different levels - from government to local councils, to communities – responds to everyday food system risks and challenges and collectively coordinated their responses during the COVID-19 pandemic. With reference to Béné et al. (2023) conceptualisation of food system resilience framework, the analysis presented in this chapter reveals measures that enhance absorptive, adaptive and transformative capacities of both individual and institutional actors across different levels of governance. Figure 7.3 below highlights key factors that contribute to absorptive, adaptive and transformative capacities that support food system resilience in the Maldives; the inner circle refers to the community level; the middle circle includes island councils and local governments; the outer circle includes the government, state, bilateral relations, and global trade networks.

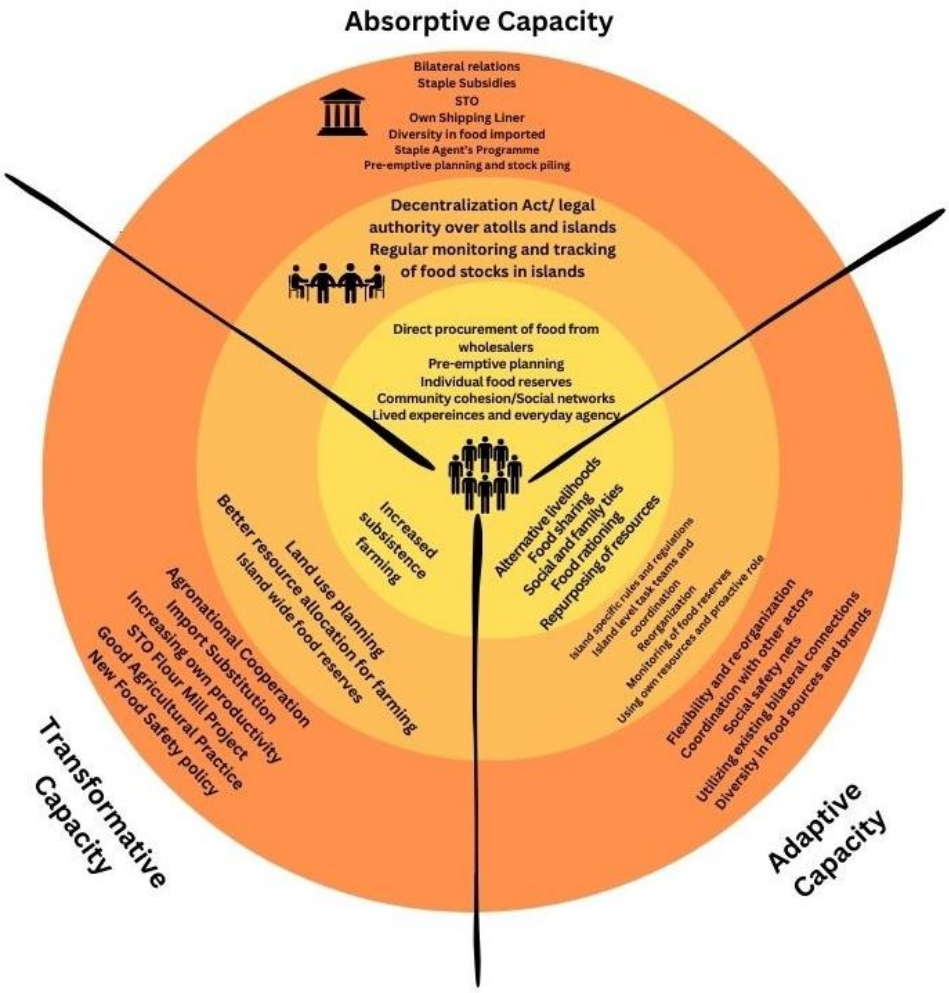

Figure 7.3: Attributes of the Maldivian food system based on Béné et al. (2014a) three capacities of a resilient SES system

The absorptive capacity of actors relies on existing coping strategies to moderate or buffer impacts of a shock of disruption on the livelihood and basic needs of the community (Béné et al., 2014a). This includes strategies that allows communities to persist change and remain resilient. In the case of the pandemic in the Maldives, state-led interventions, local council operations and community level measures contributed to enhancing the capacity of actors to resist change and remain resilient, without significant challenges or changes to the overall functioning of the food system. At the state/government level, factors that enhanced coping capacities included; the long-standing and strong diplomatic ties with neighbouring countries, particularly India; an existing programme that heavily subsidised food staples; the STO Staple Agent's Programme which helped monitor stocks of food staples across the

archipelago and distribute staples equally; existing diversity in food source countries and food varieties; and pre-emptive buying and stock-piling of food as an everyday response to precarity. At the local council level, the decentralized governance system with elected councils and close monitoring and tracking of key food reserves available in the island on an everyday basis, were key to adapting to and coping with disruptions. At the community level, the efforts of island residents to bulk buy key food items, keep household food reserves, order food supplies via social networks, share food items contributed to a robust food system. These efforts point to what Jokinen (2015) refers to as 'precarious everyday agency'; the everyday mundane, ordinary acts, which may not manifest as decisive acts of control or resistance but reflect precarity and contingency as people are exposed to diverse and potentially destabilising social and environmental changes (McMichael et al., 2019).

Adaptive capacity, the second attribute of the resilience framework, refers to adjustments or recovery measures taken by actors to continue functioning without major changes in functions or structural identity of the system (Béné et al., 2014a). Notable recovery efforts in the Maldives and the case study islands include quick reorganization of the food system, coordinated by central government, government coordination with food traders nationally, quick and flexible switching between food suppliers, taking stock of reserves, and using existing bilateral relations to address gaps in supply chains. Additional social safety nets in the form of COVID-19 relief packages provided to farmers and fishermen who lost income due to lockdowns was also key to helping people recover and meet their food security needs. At the same time, strategic decisions to maintain salaries of civil servants ensured food purchasing capacity. At the local government level, councils implemented rules and regulations in recovery efforts, such as setting strict food rationing measures when needed or having taskforces to reorganize food distribution in a manner that aligned with national COVID-19 regulations. At a community level, food sharing, both within the island and the atoll, was particularly prominent in helping communities recover from temporary difficulties in getting certain foods or restrictions on transportation highlighting the significant role of social capital (Aldrich, 2011) in enhancing resilience in these islands. At the same time, strategic food rationing and repurposing of community resources to quickly adapt and respond to disruptions were noted at a community level.

Transformative capacity, the final resilience attribute highlighted by Béné et al. (2014a), refers to the alteration of individual and community's primary structures and functions by adopting transformative strategies before or after a disruption so as to reduce vulnerability to shocks in the future. In response to the pandemic, this thesis highlights some strategies that have transformative potential, mostly in response to lessons learnt from the pandemic. These include state-led initiatives such as the establishment of a SOE (Agronational Cooperation) to reduce import dependency by encouraging people to get involved in farming in the local islands. There are also policies developed by authorities to better regulate the quality of food imports as well as to regulate locally produced food through a Good Agricultural Practice Guideline. Plans are underway to build a new port, however implementation has been slow. The STO's Flour Mill project also has the potential to reduce dependency on imports for staples, by importing raw materials and milling flour locally. However, gaps in implementation and resource scarcities limits adequate benefits of such initiative on the ground, especially at the local level. Local councils also aim to reorient food system activities, using the power given to them through the decentralization act to allocate more land for agriculture, and securing island food reserves through better land use planning.

As Béné et al. (2014b) explain, resilience requires directing a system in a way that promotes resistance (absorptive capacity) in a period of small disturbances, adaptation (adaptive capacity) in times of greater disturbances and transformability (transformative capacity) when conditions become unviable and unsustainable. The analysis of resilience efforts in the Maldives shows that absorptive and adaptive capacities are robust within island communities, whereas large-scale transformative changes require an overhaul of the existing system (Béné et al., 2014b). Strong and collaborative actions across the different levels of governance and existing agency within the communities fostered through place-based socio-cultural norms has enhanced absorptive and adaptive capacities of the food system, and helped the Maldives maintain resilience to disruptions. However, as food system scholars (Zurek et al., 2022, Ericksen, 2008) assert, while a system may show resilience attributes, these often come with caveats or trade-offs. As Béné et al. (2014b) explain, any given shock or disruption has differentiated impacts across different actors even in the same community. In the case of the Maldives during the pandemic, for example,

families who were highly dependent on farming and fishing as a key livelihood activity had to depend more on social safety nets than those who were employed in the civil service sector.

Efforts to enhance the resilience - absorptive, adaptive and transformative capacities - of a food system require actions across multiple levels of governance. This analysis asserts that while decentralized governance and local institutions are key to the resilience of complex food systems, other actors such as central government, bilateral and international partners, local businesses and the private sector also have an important stake and responsibility (Biggs et al., 2012). Building and maintaining resilience in dispersed island geographies requires a multi-level and adaptive institutional structure, targeted to enhance absorptive, adaptive and transformative capacities of all actors, and taking into account differentiated impacts of shocks and disruptions and the caveats and trade-offs that come with resilience measures. It requires effective use of existing capacities, resources, knowledge and agency of all actors in order to address the needs of local communities and achieve food system resilience.

CHAPTER 8
SHIFTING DISCOURSES ON FOOD SYSTEM RESILIENCE IN SIDS

Globally, food systems are increasingly recognized as complex, multi-dimensional, and interconnected socio-ecological systems (SES) (Ericksen, 2008, Zurek et al., 2022). As a result, food systems are argued to be highly vulnerable to global shocks and disruptions, and these shocks are forecast to worsen in the future (Maye et al., 2018, Rimhanen et al., 2023). These shocks include escalating threats posed by climate change (Mbow et al., 2019, Barnett, 2010), geo-political conflicts such as the Russia-Ukraine war (Rimhanen et al., 2023), global economic shocks and recessions (Headey, 2011), and the COVID-19 pandemic (Bene, 2020, Farrell et al., 2020, Laborde et al., 2020). The consequences of such phenomena are assumed to be worse for Small Island Developing States (SIDS) due to their geographical and socio-economic contexts, such as (but not limited to) high littorality, lack of economies of scale, high dependence on global markets, and limited potential to enhance their own agricultural productivity (FAO, 2014, AOSIS, 2012). Scholars (Béné, 2021, Hickey and Unwin, 2020) contend that the high potential exposure of food systems to global shocks and stresses underscores the urgent need to enhance knowledge on ways to support and increase the resilience of food systems, especially in the context of SIDS, to ensure sufficient and equitable availability and access to food in the face of growing uncertainties and disruptions.

Despite increasing policy and scholarly interest in food system resilience, as shown in Chapter 2, research on food systems in SIDS overwhelmingly focuses on vulnerabilities, obscuring the ways in which SIDS adapt and build food system resilience to socio-economic and environmental threats. Such an overemphasis on vulnerability assumes SIDS to be overly dependent on external resources (McGillivray et al., 2010), disempowered (Zhang et al., 2023), subject to overexploitation and extraction (Kothari and Wilkinson, 2011), and lacking in power and agency (Connell, 2013). These vulnerability discourses do not adequately consider the place-based, social, political, historical, and economic

contexts that shape everyday life and resilience in SIDS. Instead, they are in part rooted in colonial and Western imaginaries and assumptions that view islands through an oversimplified and homogenized lens. With reference to food systems, this overemphasis on vulnerability hinders insight into how resilience can be achieved by islanders, across different spatial scales such as global, national and local island networks of food systems.

In addressing the above gaps in the existing literature on food systems and resilience in SIDS, this thesis has examined the opportunities and challenges to achieving a resilient food system in a SIDS, using the case study of the Maldives. It has presented the findings of place-based empirical research in two islands - Felidhoo and Magoodhoo - drawing on people's narratives, experiences and interactions around food systems in order to understand: the organization of the food system (Chapter 5); perceived risks and challenges to the food system (Chapter 6); and the multi-scalar ways in which risks and challenges are mediated in order to maintain food system resilience (Chapter 7).

Through the case study of the Maldives, this thesis illustrated the complex interplay between vulnerability and resilience in SIDS. It showed that a SIDS such as the Maldives can be both vulnerable and resilient, with this vulnerability-resilience nexus shaped by island geographies, connectivities, networks and processes across the different spatial scales, socio-cultural norms, and governance structures. These factors facilitate timely and flexible re-organization of socio-ecological food systems through enhanced absorptive, adaptive and transformative capacities of actors. Nonetheless, this thesis acknowledges that narratives of resilience should not overshadow the inherent risks, caveats and trade-offs that can undermine resilience efforts (Zurek et al., 2022, Béné et al., 2023). For example, food security can be compromised by geopolitical dynamics (i.e. due to high dependence on global markets, with limited local control over the geopolitical concerns of food import source countries) and inequalities in access and quality of food can occur across different spatial scales, creating differentiated benefits and losses at the local level.

This thesis contributes to a growing body of literature that foregrounds the resilience of islands (Armstrong and Read, 2006, Baldacchino, 2008, Baldacchino and Bertram, 2009, Hay, 2006). It demonstrates that despite risks and challenges to the food system, as perceived and experienced by islanders, it is also possible for the Maldivian food system

to adapt to everyday risks and challenges and recover from sudden shocks. This resilience is linked to three factors; (i) strong and diverse connectivity across scales that enables a reliable and consistent food supply; (ii) place-based social and cultural norms and everyday agency that permeate food system activities; and (iii) multi-level governance that enables effective and collaborative responses to disruptions and shocks to the food system.

In making the above interpretations, this thesis acknowledges that while the Maldives shares certain similarities with other SIDS—such as geographic and environmental factors, and certain socio-economic characteristics—its unique attributes have shaped its vulnerability and resilience discourse in distinct ways. Factors like its colonial history, religious homogeneity, proximity to India (a major food-producing hub), and long-standing tradition of seafaring trade have contributed to a resilience context that may differ significantly from that of other SIDS. However, the Maldives is not an atypical case within SIDS; rather, this thesis aligns with scholars like Hay (2006) and (Baldacchino, 2008) in emphasizing that each SIDS embodies a distinct identity, culture, and "ecology"– underscoring the heterogeneity within the SIDS grouping while at the same time sharing other characteristics. This study thus highlights the limitations of framing the international SIDS development context through a simplified, homogeneous lens in which they are represented as being primarily vulnerability or deficit , that obscures their unique resilience attributes.

This final chapter begins (8.1) by revisiting the three research questions, as outlined in Chapter 1, and summarises the findings from the three empirical chapters (Chapters 5, 6 and 7). It then (8.2) examines in-depth the three key attributes of resilience mentioned above (connectivity, place-based socio-cultural norms, and governance) and discusses the significance of the key findings within the broader literature on islands, food systems and resilience.

8.1 Food System Resilience in the Maldives

This section revisits the key findings of the three empirical chapters (Chapters 5, 6 and 7), to deepen analysis of food system resilience in SIDS.

8.1.1 Organization of the Food System: Everyday norms and practices

The first research question asked, 'How is the food system in the Maldives organized in terms of international and domestic trade, production, distribution and consumption of food?' Chapter 5 examined the unique characteristics of islands in the Maldives that contribute to and shape people's everyday lives and the organization of their food systems. It showed that Maldivian islands are shaped by strong and sustained social and cultural norms, despite changing food consumption patterns influenced by increased access to diverse and new food markets. The strong food-sharing ethos in the islands, and communal food preparation and meals, are still enjoyed particularly during religious occasions. The shared religion – Islam – reinforces the culture of food sharing and community kinship (Kassam and Robinson, 2014). The sea-boundedness and smallness of these islands have safeguarded the unique history and cultural heritage of these islands, preserving a strong island identity (Hay, 2006), and creating a tight network of community and kinship (Foley et al., 2023). At the same time, social networks and connections surpass the littoral boundaries of islands and facilitate domestic trade and flow of food. The role of social connections is evident as people rely on networks of friends and family to order, buy and transport groceries and to sell produce.

According to Baldacchino (2020b), the geographical constraint of living within a defined parameter, surrounded by water, significantly shapes island life. While similar social connections exist in other small communities, the sense of community and social connectedness is argued to be stronger in islands. Baldacchino (2020b) attributes this to the long history of islanders living in more precarious conditions (i.e. frequent weather-related disasters) as compared to other places, often without external assistance. As a result, survival and solidarity in island communities have historically relied on mutual support within the community. The enduring experience of facing precarity in sea-bounded island spaces fosters a unique sense of community, safety, and comfort, nurtured through longstanding social connections and kinship networks; this is evident in the Maldives.

While internal social networks and cultural norms are foundational to the organization of the food system in the Maldives, global connections - facilitated through bilateral relationships, long histories of seafaring and an expanding tourism sector – are also central

to the food system and trade dynamics in the country. These connections challenge the notion that SIDS are geographically distanced from markets with limited access to global food systems (FAO, 2014). As scholars such as Pugh (2016) indicate, islands are not isolated, unchanging or uniform places; they are shaped by connections, movements of people, ships, trade, and evolving relationships (Bernardie-Tahir and Schmoll, 2014). Being bounded by sea is not an obstacle but a road (Hau'ofa, 1994) through which trade and movement can thrive, facilitating connections between islands and other places (Hayward, 2012).

In examining the Maldivian food system through a geographic and people-centric lens, Chapter 5 showed the place-based social, cultural, historical, economic, and political context that underpin the organization of the Maldivian food system. It highlighted the 'irreducible uniqueness' (Hay, 2006: 212) of an island and its food system. It provided nuanced understandings of the human entanglements that shape resilience on islands (Kothari and Arnall 2019), and underscored the importance of context-specific responses to enhance food system resilience in local islands (Mikulewicz, 2019).

8.1.2 Food System Challenges: From everyday risks to sudden shocks

In addressing the second research question - 'What are the risks and challenges to the Maldivian food system?' - Chapter 6 highlighted diverse, interconnected risks and challenges that affect everyday food systems. The most common risks highlighted included impacts of global geopolitics such as volatile food and fuel prices, climate change impacts that threaten food systems both globally and locally, resource scarcity and diminished quality of local foods, a rapidly expanding tourism sector, and weak regulation and implementation of policies linked to food systems. Similar risks and challenges have been identified across other SIDS contexts, such as the impacts of climate change on agricultural systems and food supply (Barnett, 2010, Allen, 2020), global connectivity and trade which hinder the development of local small-holder farming and productivity (Connell and Lowitt, 2020), adverse consequences of globalised and commercialised food trade for population health in SIDS (Chase et al., 2014, WHO, 2012), tourism as a form of culinary colonialism (Koa Dunsford, 2010), loss of traditional food cultures (Berno, 2020), and weak regulation and governance (Turner et al., 2007).

Chapter 6 showed how risks and challenges cascade through spatial scales of the Maldivian food system (Ericksen, 2008), with amplified inequalities and threats to food access and quality at smaller and more localised spatial scales. Indeed, as highlighted in food systems scholarship (Ericksen, 2008, Ingram, 2011), multi-scalar analysis of food systems (global-national-island) is critical in order to understand how risks and challenges interact and manifest across different scales (Ramalingam et al., 2008, Thompson and Scoones, 2009). In highly interconnected food systems such as that of the Maldives, interactions across scales mean that global impacts shape the local (Wilhelmina et al., 2010) including resilience of food systems across dispersed archipelagos of islands. Moreover, the analysis across different spatial scales reveals that resilience in food security is not uniformly experienced (Adger et al., 2003); rather, it often excludes or disadvantages certain groups. In the Maldives, for example, food prices increase as one moves further away from Malé to the local islands, while food quality also diminishes with distance form Malé .This creates differential impacts across populations and heightens food security concerns for those living further far from the capital, emphasizing how spatial dynamics can exacerbate inequalities in food access and resilience.

While everyday risks challenge food security in the Maldives, the shocks connected to the COVID-19 pandemic provide a specific and illuminating case through which to examine food system vulnerability and resilience. Indeed, food system scholars such as Zurek et al. (2022) and Béné et al. (2023) argue that the resilience of complex socio-ecological systems, such as food systems, is better understood when viewed in response to a clear shock or stress. Emerging literature in the wake of the COVID-19 pandemic questioned the resilience of food systems in SIDS (Farrell et al., 2020, Hassan, 2020, Béné, 2021, Chiwona-Karltun et al., 2021), arguing that they would be severely and adversely impacted by the pandemic. For example, Daley et al. (2022) found that the impacts of the pandemic were significant on agri-food systems in the Caribbean SIDS, with significant disruptions along the supply chain. Similarly, Ferguson et al. (2022) found that in the Pacific SIDS, such as Papua New Guinea (PNG) and Tuvalu, significant food shortages were encountered during the pandemic. However, this thesis indicated that despite initial panic the impacts of the pandemic to food systems and supply were quickly mitigated in the Maldivian islands.

8.1.3 Navigating food system challenges and maintaining resilience

Chapter 7 addressed the third research question, 'How do the government, local councils and communities respond to multi-scalar risks and build and maintain food system resilience in the Maldives?' It showed that food system resilience in a context of dispersed island geographies requires multi-level (government, local council, community) forms of governance that enhance the absorptive, adaptive and transformative capacities of actors (Béné et al., 2014b). It requires decentralization of resources, flexibility and adaptability in governance, and effective utilization of existing capacities, resources, knowledge and agency of actors.

Absorptive, adaptive and transformative capacities of actors across different levels of governance enhanced the resilience of food system in the Maldives. The absorptive capacities (Béné et al., 2014a) of the Maldivian food system actors were evident in global and bilateral trade connections and diversity that enhanced capacity to absorb impacts of shocks and stresses. National-level mechanisms - such as subsidies for food staples, the market-stabilising role of the State Trading Organization, decentralised distribution of food staples - also contributed to a robust food system. Consistent efforts by state traders to diversify food varieties and food import source countries further enhanced their coping or absorptive capacity in the face of sudden disruptions. At the local island level, decentralization gave island councils autonomy to streamline food supply in ways that met the needs of local communities. They also kept stocks of food reserves in their islands in preparation for potential disruptions and to better cope with impacts. At a community level, the everyday agency (McMichael et al., 2019) of residents contributed to enhanced absorptive capacity, such as food sharing between households, pre-emptive shopping, maintaining food reserves, and using social networks to access good quality and affordable foods.

Adaptive capacity (Béné et al., 2014a) was also evident across diverse spatial scales. At the state level, pandemic recovery measures included coordination of food supplies with traders, flexibility in rules and regulations, provision of social safety nets, and utilization of bilateral trade connections. At the local government level, island councils set rules for their respective jurisdictions, island-level task teams organized food supply in local

communities, and food reserves were monitored. At the community level, residents switched livelihoods, repurposed resources to diversify food sources, and drew on social and cultural capital to ensure availability and access to food, where food sharing became commonplace.

Transformative capacity (Béné et al., 2014a) requires policies and efforts to reorient the food system. Efforts at the state level that have transformative potential included the establishment of a SOE to promote agricultural productivity and limit import dependency, policies to better regulate the quality of imported and locally produced food and plans to mill flour locally. At the local government level, transformative aspirations exist, such as plans to allocate more land for farming in islands and establish island-wide food storage through better land use planning. At the community level, transformative capacity is more limited but includes livelihood diversification in the face of disruption. Given the current gaps in implementation and resource scarcities in the Maldives, transformative initiatives and policies remain weak at the local level.

This analysis indicates that efforts to enhance absorptive, adaptive and transformative capacities of a food system require actions across multiple levels of governance. While there is value in decentralized governance, enhanced resilience of complex food systems requires action across local communities, businesses and traders, subnational governance structures, national institutions and government, regional partners, and the private sector (Biggs et al., 2012).

8.2 Rethinking Food System Resilience in Islands

This section analyses the key attributes of resilience, evident through the case study of the Maldives and discusses the significance of the research findings within the broader literature on islands, food systems and resilience. This thesis contributes to the literature on resilience of SIDS, by challenging the discourse of islands as exclusive sites of vulnerability, and by analysing evidence from the Maldives to show how people in a small island nation adapt and build resilience to risks and shocks to their food system. It shows that the distinctive spatial and socio-cultural characteristics (as detailed in Chapter 4) of the Maldivian islands are not solely an obstacle but also provide opportunities to build and maintain resilience in the face of everyday risks and sudden disruptions.

As highlighted at the beginning of this chapter, this thesis brings to the fore three important attributes of resilience from the case study of the Maldives: 1) robust connectivity that shapes food supply and access, 2) place-based socio-cultural norms and everyday agency that permeate food system activities; and 3) multi-scalar governance of food system disruptions.

8.2.1 Connectivity and Resilience

Connectivity enhances the resilience of socio-ecological systems. Robust connections across the different actors and scales of a complex SES can cultivate trust, reciprocity and collective action (Béné et al., 2014b, Biggs et al., 2012) in times of disruptions. Within food systems (Hasnain, 2020b, Zurek et al., 2022, Biggs et al., 2012), diverse connections help maintain various options in response to change and disturbances, such as having multiple food sources, varieties, and access to markets and institutions. This thesis has shown that the Maldives - often considered to be challenged due to its insularity and separation from global markets, due to 'inherent' characteristics of a SIDS (Royle, 2001, FAO, 2014) - has global and local connections that contribute to food system resilience in the face of socio-economic and environmental changes.

Robust global connectivity in the Maldives has historical, economic, and political roots. As seen in Chapter 5, historians document evidence of seafaring, navigation, and trade since the first inhabitants arrived in the Maldives some 2500 years ago. At the same time, its strategic location in the Indian ocean has made the Maldives an important resting point for seafarers and traders who travelled from the West to the East and vice versa, thereby contributing to diverse global connections. While these historical accounts and seafaring histories have shaped the contemporary trade dynamics in the Maldives, this research has shown that rapid expansion of the tourism industry in the Maldives has further enhanced connections globally and encouraged traders to diversify food imports and trading partners to cater to diverse food preferences. Gould et al. (2018), argued that for SIDS, economic connectivity through trade, investments, migration, modern telecommunications and transport could be an asset for building resilience. It could open up new and diverse markets to SIDS for trade, and allow the movement of new knowledge, ideas and resources. In the Maldives, diversity in economic connectivity through trade and tourism has given traders

the flexibility to adapt to volatile food trade dynamics by switching between suppliers and source countries if their usual supply becomes expensive or challenging to obtain. Overall, it has created an adaptable food environment in the Maldives.

Regional political and diplomatic connections also enhance resilience in times of disruptions, as witnessed during the COVID-19 pandemic. The Maldives-India bilateral connections as well as close relations between the Maldives and Sri Lanka, a key shipping partner and transit point for ships on route to the Maldives, has contributed significantly to stabilizing local food markets in times of disruptions. India has remained a close ally of the Maldives, fostering relations that traders described as like 'family', and providing a reliable source of cheap and quick food supplies. A special trade agreement between the Maldives and India grants the Maldives a generous export quota for essential food ingredients, including rice, sugar, flour, dal, onion, potato, and eggs. These existing strong trade and bilateral connections with India, ensure that the government can play an important role in stabilizing markets during times of high demand for food such as Ramadan and in times of unforeseen disruptions, by bringing in key food ingredients cheaply and quickly from India. Evidence from the pandemic further revealed how these strong bilateral connections with India helped the Maldives remain resilient to food system shocks. This has created a diverse and resilient food environment in the Maldives, showing that global, regional and bilateral political connections offer some benefits to SIDS including through increasing economic connectivity (Gould et al., 2018). For example, an assessment of economic connectivity in the Caribbean SIDS by Escaith (2001) showed that political connectivity contributes to economic resilience, as it does in the Maldives, but can imply a high dependence on external economic conditions, making SIDS more susceptible to economic shocks.

As such, high dependency on global markets, facilitated through trade and economic and political connectivity comes with several trade-offs and caveats. As discussed above, while some argue that economic connectivity through trade and investments enhances resilience (Gould et al., 2018), several scholars view over-dependency on trade as problematic as it can limit the development of local food systems due to high competition with cheap and processed imports from industrial countries (Connell and Lowitt, 2020), limited

investments in local production and innovation, less diversification, and insufficient economic viability in regional and global export markets (FAO, 2016). Increased dependency on global trade and imports has also been linked to increases in non-communicable diseases (NCDs) (Chase et al., 2014), due to marketisation of cheap and highly processed foods. Such shifts in food consumption are also associated with the transformation of people's connections to food cultures and traditions (Connell and Lowitt, 2020). Similar challenges are experienced by islanders in the Maldives due to high global connectivity and food-trade networks. High exposure to volatile food prices is a persistent challenge for islanders, with increasing inequalities and threats to food access at smaller and more localised spatial scales (i.e. local island level) given that food prices rise with increased distance from the capital city. Reliance on international food imports, when coupled with weak regulatory measures locally, can also lead to the supply of lower-quality foods - cheap, unregulated and lower nutritional value - for local consumption. This issue is evident in Maldivian islands, where the increasing prevalence of non-communicable diseases (NCDs) reflects the impacts of such dietary changes. At the same time, high dependency on international trade creates shifts in food preferences, eroding traditional synergies between socio-cultural values and norms associated with food in the islands. Moreover, regional power imbalances, such as reliance on a highly monopolized Sri Lankan shipping market, result in locals having limited control over shipping costs, which rapidly fluctuate and increase during times of disruptions, as witnessed during the COVID-19 pandemic. The escalating 'India Out' Campaign in the Maldives also poses potential threats to national food security, as it has started to create political tensions between the two countries. Further, while expanding tourism has facilitated global connectivities, tourism has also led to over-commodification of local produce such as fish, thereby reducing availability for local consumption.

SES resilience literature acknowledges that desirable outcomes within a (food) system do not always align for all actors, and trade-offs need to be evaluated and addressed (Zurek et al., 2022, Béné et al., 2023). In the Maldives, for example, while rapid fluctuation in food prices is a challenge, these are mediated by existing state subsidies for key food ingredients and the market stabilizing role of the State Trading Organization. The recent acquisition of a State-owned Shipping Liner (MSS) helps traders navigate challenges associated with a

highly monopolised shipping market, by giving Maldivians greater control over food logistics and prices. Transformative policies exist such as: efforts to limit import dependency by encouraging the development of local agriculture and production sectors; new and refined food policies to better regulate the quality of food imports. However, ineffective implementation of such policies can further lead to differentiated benefits across different actors. As argued by Mikulewicz (2019), policies that oversimplify such social relations, structures and elements result in internal and structural inequalities and non-transformative solutions. This is evident in the market-oriented agricultural schemes such as AGRNOAT in the Maldives, where subsistence farmers feel marginalized.

While global connectivity through diverse trade connections is important in ensuring a consistent supply of diverse food into the country, local connectivity facilitated through frequent passenger ferries and supply boats that travel from one island to the other enhances resilience and local food supply. Frequent trips are made by island and atoll supply boats back and forth from the capital island, transporting imported food supplies to islands as well as local produce from islands to markets. Passenger ferries also make frequent trips, providing an additional avenue for people to transport and access food. This local connectivity allows islanders to maintain supply of food in their islands and individually, with some depending on weekly and monthly commutes to the capital island to buy groceries. Thus, regular transportation links between one island to the other in the archipelagic island nation of the Maldives facilitates the movement and circulation of people and material objects (including food) in everyday life (Hannam et al., 2006, Pugh, 2013).

However, while local connectivity facilitated through transportation infrastructure and links enhances resilience at the local level, there are caveats. Climate change poses a significant threat to transport routes between islands. Increasing frequency of sudden onset disasters and unpredictability in weather results in delays and damages to food supplies and transportation infrastructure. The damages and risks are further exacerbated by poor storage facilities in transport vessels, which sometimes leads to diminished quality of food available at the local level. Further, lack of island- or atoll-owned supply boats can amplify local-level inequalities where community members are forced to rely on supply boats

owned by other neighbouring atolls. This disadvantages some islanders as they must contend with fluctuating costs and unreliable transport which can hinder food access.

The case study of the Maldives indicates that global and local connections are vital for food system resilience in SIDS. It shows 'enhanced mobility at different scales' (Bernardie-Tahir and Schmoll, 2014: 44), challenging islandness discourses that view islands such as the Maldives as separate and insular. Instead, it has shown that the Maldivian islands are connected and dynamic (Weinbaum, 2015), through long histories of trade, political and economic connectivity. At the same time, local connectivity through frequent transportation links within the archipelago further enhances this resilience. Yet a spatial and people-centric examination of resilience has illuminated several ongoing challenges - such as impacts of regional geopolitics on food supply, internal power imbalances due to resource constraints - and shown how these continue to create inequalities in access and quality of food available at the local level. As Adger et al. (2004) argue, lack of careful consideration of power dynamics, political economies and social structures and relations, favours interventions that disproportionately benefit the political elite, men and the local 'winners' of adaptation. In the case of the Maldives, stark disparities in food access and quality are evident between residents of the capital island and those residing further away. Hence, while connectivity enhances resilience, this discussion underscores the need to adequately take into account power imbalances and the differentiated outcomes they have on populations, in this case, local islanders.

8.2.2 Place-based socio-cultural norms and 'everyday agency'

In addition to connectivity, this thesis has examined the significance of place-based social and cultural norms in enhancing everyday agency (McMichael et al., 2019, Jokinen, 2015, Kothari and Arnall, 2019) and the resilience of food systems in the Maldives. The significance of social relations and community capacities in enhancing the resilience of socio-ecological systems have been discussed widely by social scientists (Aldrich, 2011, Norris et al., 2008), underscoring the role of relationships, networks, trust, reciprocity, shared norms and cultures (Pretty and Ward, 2001). Enhanced social capital and resilience allows communities to cope with disturbances and change and maintain adaptive behaviour through self-organization (Adger, 2000). In the Maldives, a strong sense of community

exists, demonstrated through food-sharing ethos linked to shared religious norms and social networks that foster connectivity and trust between actors.

Food sharing and the sense of community built around food-related activities in the Maldives contribute to the resilience of food systems. Sharing of surplus local produce between friends and family, within the islands and beyond, is common. Food is strongly perceived to be enjoyed as a community, where communal food preparation and consumption still exists in the islands. Everyday meals are frequently shared with friends, family and neighbours, especially during Ramadan. These food-sharing practices was found to intensify in times of disruptions to the food system, often extending beyond the littoral boundaries of islands to include nearby islands within atolls. Such food-sharing practices have significantly helped local communities to adapt and rebuild, and 'survive', especially during the initial days of the COVID-19-related shocks and disruptions. Indeed, food system scholarship acknowledges the deep cultural roots associated with food where food can be a symbol of personal identity, group affiliation and religious or cultural identity (Bisogni et al., 2002). In this context, food sharing and gifting is an important way to express social belonging (Goody, 1982). In the Maldives, food sharing practices enable islanders to remain resilient in the face of disruptions. In other SIDS, similar food sharing ethos exist. Ferguson et al. (2022) observed that local food production and food sharing played pivotal roles in Micronesia, Fiji, Palau, Papua New Guinea (PNG), Solomon Islands, Tonga and Tuvalu, during the COVID-19 pandemic, showing increase in food sharing across the region. However, in some SIDS, they found a significant decrease in food sharing due to severe shortages of food and concerns regarding virus transmission. Such severe shortages in food did not occur in the Maldives, and food sharing remained high, especially during the initial days of the pandemic.

This strong food sharing ethos evident in the Maldives, is also linked to the sharing of one religion (Islam). Scholars such as Monterrosa et al. (2020) argue that a function of food in religion is the demonstration of faith through symbolic acts, rituals and enhancement of identity and belonging through food practices and prescriptions (Fieldhouse, 1995). In Islam, religious festivals such as Eid and Ramadan are occasions where shared beliefs and identities are evident in communal gatherings and sharing of food with one another

(Kassam and Robinson, 2014). Indeed, the Qur'ān (holy book of Islam) calls on people to foster a strong and cohesive community as a source of strength, guidance, and spiritual growth, especially during hardships (Kassam and Robinson, 2014). Food sharing in the Maldives was particularly evident during religious festivals and holy celebrations such as Eid and Ramadan, which bring families and communities together and food sharing is a central focus (See Chapter 5). These occasions, marked by feasts and fasts, provide communities with the opportunity to come together, share meals, and rejoice (Kassam and Robinson, 2014). Saja et al. (2019) assert that belief systems can act as a form of capital in communities with strong and common belief systems and shape social resilience to disasters. Thus, while food sharing practices are common in other SIDS (Ferguson et al., 2022), in the Maldives, a shared religion and belief system acts as an additional form of social capital, enhancing resilience of communities.

Social networks are also important dimensions of resilience in the Maldivian islands. Social networks and connections act as the glue that binds complex socio-ecological systems together (Tuda et al., 2021, Folke et al., 2005), allowing for flexibility, creativity and adaptability in times of disruptions. In the Maldives, social networks are embedded in everyday life and are used when placing food orders from the Malé market, selling local produce to other islands or the Malé markets, and as a means of mediating volatile food prices in the islands. Social networks help people in local islands to reduce food cost and to self-organise food supply and access; they complement formal mechanisms of connectivity that enhance self-organization and resilience (McConney et al., 2011, Bodin and Prell, 2011). Furthermore, local island councils spoke of how they reached out to neighbouring supply boats in other atolls, through existing informal, social networks, to re-build formal food supply networks that were disrupted by COVID-19 lockdowns. Thus, social connections represent an important form of capital in the close-knit island communities, based on trust, community and cooperative action (Shannon, 1990). Trust in island communities in the Maldives was evident, for example, as shop owners gave food for credit in order to help residents, and as councils paid in advance for food from other islands on behalf of residents during the COVID-19 pandemic.

Similar accounts of the role of social networks in enhancing resilience is evident in other SIDS. According to McConney et al. (2020), fisherfolk in the Eastern Caribbean SIDS relied on their social networks to manage their fishing operations during disruptions such as rough seas and market glitches. This promoted self-organization through reduced reliance on external inputs, facilitated through collective actions (ibid). Similarly, Saint Ville et al. (2020a) found that farmers consider community-based social networks trustworthy, connect with each other, and share knowledge sourced from interpersonal networks, and this fosters innovation and resilience. Thus, similar to the Maldives, social capital in these islands was found to have fostered adaptive capacity, collaboration and food system resilience (Adger et al., 2003, Pretty and Ward, 2001, Brown, 2002).

These socio-cultural norms and practices contribute to enhancing the 'everyday agency' (Jokinen, 2015, McMichael et al., 2019) related to food systems and food decision-making in the Maldivian islands. For example, local weather-related disruptions to transport networks between islands through to climate change impacts on food production in source countries, have impacts on the price and availability of food in the Maldives. People respond to these disruptions or challenges to food security as part of their everyday experience and agency (Payne, 2012); for instance, residents of islands adjust to food transport challenges by procuring supplies in bulk from the capital island via their social networks (See Chapter 7). Similarly, sharing of food has always been deeply ingrained in everyday life in islands, which becomes a strong form of social capital in times of disruption. Such expressions of agency are often part of everyday life for those living in precarious situations (McMichael et al., 2019). They may not manifest as decisive responses, but represent norms and practices that respond to frequent exposure to precarity and contingencies (McMichael et al., 2019). In the Maldives, everyday agency enables people to anticipate and respond to changes, minimise adverse environmental and socio-political impacts, convert resources into effective adaptive action and take advantage of emerging opportunities (Cinner et al., 2018). Similar narratives of everyday agency have been documented in the Maldives, in the context of climate change and tourism (Kothari and Arnall, 2019) and involuntary resettlement and migration (Azfa et al., 2020). In other SIDS such as Fiji (McMichael et al., 2019) and Kiribati (Kuruppu, 2009), similar accounts of everyday agency have emerged, where islanders adapt and respond to persistent risks of

climate change through often ordinary, mundane habits and cultures, that are deeply ingrained in their everyday lives. Thus, paying closer attention to the norms, habits, cultures and traditions of islands, provides a more nuanced understanding the agency of island communities to adapt, recover and maintain resilience in the face of uncertainties. It pays attention to the unique capacities and knowledge developed in islands over centuries of coping, accommodating and absorbing disruptions and changes, based on cultural heritage, flexibilities and lived experiences (Baldacchino and Bertram, 2009). As stated by Lenette et al. (2012:639), 'the everyday is not simply the vessel in which lives are lived, rather it is the milieu in which the social processes of resilience are enacted daily'.

However, challenges to food systems can erode social and cultural norms, shifting food environments. According to some scholars (Connell and Lowitt, 2020), social and cultural traditions associated with food have started declining in islands, reshaping local food preferences and identities; Western food is associated with modernity and prestige, while local cuisine has lower status. Similar shifts in food consumption patterns and preferences in local diets are evident in the Maldives, especially due to factors such as access to diverse global markets and rapid expansion of local tourism in the islands. Further, internal politics in the Maldives linked to introduction of the multi-party politics system has created tensions within local communities, friends and family, contributing to erosion of socio-cultural norms - such as communal meals - that fosters the sense of community in these islands. However, the social aspects of food sharing, community and social networks remain important to everyday life and food systems in the islands and have become particularly prominent in the wake of the pandemic (See Chapter 7).

While social and cultural capital enhances resilience in island communities, scholars critique oversimplified use of the concept of community (Mohan and Mohan, 2002). For example, simplistic accounts of community can disregard exclusion and hostility to outsiders within close-knit social networks (Mohan and Mohan, 2002), as is evident in the attitudes of some towards Bangladeshi migrant workers in the Maldives. Their prominent involvement and contribution to the local food production networks is perceived by many locals as a hindrance, that limits their participation in food system activities. Bangladeshi workers are seemingly excluded from what locals perceive as their community and are

referred to as an ‘interruption’ to their everyday organization of the food system. Decades of weak regulatory measures have facilitated unlawful and fraudulent recruitment practices concerning migrant labour in the Maldives, where migrant Bangladeshis are often left susceptible to exploitation and human trafficking. Thus, deep-rooted structural and institutional factors contribute to shaping local perceptions of community, at times creating tensions between expatriates and locals within the food system.

Additionally, the strong social networks in these communities can adversely affect the agency of certain individuals. For example, some community members are reluctant to purchase groceries from shops outside their usual networks, from a fear of offending friends and relatives who own those shops (as explained in Chapter 5.2). Such strong social ties can negatively influence food choices and purchasing habits, suggesting that while social capital may enhance resilience for some, it does not uniformly benefit all members of the community. Similar negative implications of social networks have been identified in prior research (Ballet et al., 2007, Saint Ville et al., 2020a, Barnes-Mauthe et al., 2015). For example, Barnes-Mauthe et al. (2015) found that deeply embedded connections can lead to greater homogeneity in beliefs, behaviours, and knowledge within a network, thereby reducing interactions with outsiders. This trend is apparent in the Maldives, particularly in relations towards Bangladeshi workers as described above. Nonetheless, social connections and cultural norms remain vital to the organization and resilience of the food system in the Maldives. They foster agency within island communities, and build on long-standing resilience strategies developed over centuries of coping, accommodating, absorbing and transforming (Baldacchino and Bertram, 2009) in response to ‘everyday precarities’ (Jokinen, 2015) in these islands.

8.2.3 Multi-level Adaptive Governance

Within island literature, being geographically bounded and fragmented or spatially dispersed is widely acknowledged as a challenge to effective governance and management of resources across the archipelago. In the context of governance in islands, Movono et al. (2023) advocate for placing islanders and their life at the forefront of governance efforts, asserting that islandness is integral to building resilience. This thesis showed the significance of multi-level adaptive governance in enhancing food system resilience in the

archipelagic island geography of the Maldives. Effective approaches to govern food systems remain crucial and contested in SIDS food system resilience literature. Connell and Lowitt (2020) highlight that hierarchical governance structures from colonial times are unsuitable for today's globalized food system, while Saint Ville et al. (2015) and McConney et al. (2014) contend that centralized power held by state institutions constrains agricultural innovation and local action in SIDS. Such centralization weakens local actors, undermining connections between citizens and the state (Connell, 2014, Lowitt et al., 2015). This literature on food governance on SIDS argues for decentralized governance systems which facilitate better knowledge utilization and strengthen ties between decision-makers and communities, aiding empowerment within the food system (Helling et al., 2005).

The findings of this thesis provide evidence on the effectiveness of decentralized power and governance in adaptive management of multi-scalar risks and challenges in the Maldives. As detailed in Chapters 4 and 7, the existence of a decentralization act in the Maldives with elected island and atoll councils with clearly defined jurisdictions and clear autonomy over their respective jurisdictions, has contributed positively to the resilience of communities. Through evidence gathered from the COVID-19 pandemic, this thesis showed that local councils played a remarkable and instrumental role in quickly reorganizing communities, through rules and regulations that best fit the local context. They also coordinated with local shops within their island jurisdictions to keep track of local island-level food reserves and implement food rationing measures. They assumed central local roles, resuming disrupted supply routes, and planning alternative connections to bring food into their islands. The findings suggest that island councils can play an important intermediary role between the central government and local island communities, exercising autonomy and power within their local jurisdictions to make decisions that address the needs of island communities. As Béné et al. (2008) assert, decentralization fosters empowerment as it brings governments closer to the governed - spatially and institutionally - and makes governments more responsive to the needs of the most vulnerable. Based on the assessment of other SIDS, such as in the Caribbean, Saint Ville et al. (2020b) and McConney et al. (2020) highlight the need for decentralized governance to foster stronger connections between actors and institutions at the local level and enhance knowledge flows between them to enhance food security and resilience.

The advantages of decentralized governance are more pronounced in the Maldives, due to the small spatial size, populations and boundedness of the islands, which allowed greater flexibility and closer coordination, monitoring and control of resources at the local level. The findings of this thesis suggest that council-led activities - such as ensuring household food security by collecting shopping lists and delivering food to doorsteps and by collecting pre-orders for fish, paying fishing boats on behalf of households and delivering fish to households – were considered by islanders as achievable only in small island communities like the Maldives. While in dominant discourses of islandness, smallness is interpreted as an 'inherent' characteristic of island vulnerability, helplessness and precarity (Nunn, 2004), in the Maldives smallness has been shown to be an advantage in maintaining the resilience of local communities to food system shocks and disruptions. Furthermore, smallness when coupled with the boundedness of the islands, gives clearly defined jurisdiction of power for local councils, making the management of common good and resources easier (Kelman, 2020). Islandness has enhanced opportunities for the local councils to closely monitor and control resources (Veenendaal and Corbett, 2019), resulting in more representative and inclusive governance (Anckar, 2008) of food at times of disruptions.

In examining the role of different food system actors in response to the COVID-19 pandemic in the Maldives, it is apparent that adaptive governance occurs across multiple scales (Boyd et al., 2008). This includes bilateral and diplomatic relations with regional and global trade partners, the government, the State Trading Organizations, shipping companies, private traders both at the national and local island scales, atoll and island councils, and local community members and networks. The government played an overall coordinating role, bringing the private sector (i.e. food traders) together, through a flexible and collaborative online platform, which allowed close coordination of food stocks across the nation. It also allowed real-time monitoring of challenges and fostered an ongoing process of problem-solving and learning (Folke et al., 2005). Existing bilateral connections and networks regionally facilitated the government to get uninterrupted supplies of food, stabilize markets in times of disruptions and diversify their food sources and varieties. The State Trading Organization, through its established programmes (i.e. Staple Agent's Programme), was able to connect to agents across the archipelago and monitor reserves of staples and coordinate supplies as required. At the same time, as asserted earlier, local

councils operated through close coordination with the central government and other food actors (i.e. traders, State Trading Organization), adapting rules and regulations to local contexts. Local community members relied on social networks, connections and long-standing cultural norms such as food sharing, which enhanced their agency and resilience.

This multi-level coordination represents a collaborative, flexible and learning-based institutional arrangement (Folke et al., 2005, Boyd et al., 2008). It has allowed an inclusive, coordinated and effective management of food in the dispersed island geography of the Maldives. It showed that overall coordination at larger scales (i.e. government) is important, while allowing for flexibility in the implementation of rules and regulation through greater autonomy at the local levels (i.e. decentralized governance) (Cash et al., 2006, Berkes et al., 2003). Several scholars assert adaptive governance as central to addressing complex, interdependent social and ecological systems, which are consistently changing and faced with uncertainties (Folke et al., 2005, Boyd and Folke, 2012). Within the literature on the adaptive governance and resilience of SES in SIDS, polycentric institutional arrangements (Ostrom, 2005) have appeared as beneficial to enhancing resilience and food security. Mohammadi et al. (2022) suggest that polycentric governance may be a suitable mechanism to advance food security in Caribbean SIDS, by recognizing bridging institutions and engaging various actors in supporting shared rule-making, power, conflict management, and knowledge-sharing among local, national, and regional policy actors. Similarly, Saint Ville et al. (2020b) underscored the need for context-specific, multi-layered and polycentric institutional frameworks to promote equitable and inclusive governance in SIDS, addressing power imbalances and facilitating transfer of knowledge and interactions among diverse social actors. In the context of Pacific SIDS, Barnett (2001) showed the significance of polycentric institutional systems where multi-level actors (regional to local level) can facilitate local level adaptation strategies by re-establishing mutually supportive relationships and foster traditionally and culturally appropriate resilience measures. The findings of this thesis further underscore the value of adaptive, multi-layered governance structures that offer flexibility and increase the resilience of SIDS to shocks.

There are, however, challenges to multi-level adaptive governance that can support resilient food systems. For example: resource availability for local councils and atolls is dictated by the central government; the State Trading Organization and traders decide what food is imported and made available for local consumption; the cost of food is determined by shipping costs and wholesalers; local island shop owners have little control over what food they can buy; Bangladeshi expatriates dominate the local food supply chain, from farming to retailing; conflicting mandates across state-level institutions create confusion over who is in control of what within the food systems. Thus, while resilient and adaptive governance is understood to be achieved through participation, inclusiveness, accountability, transparency, and equity (Mahon et al., 2008), this is not readily and consistently achieved. For example, Belmer et al., (2016), in their study on water resource management in SIDS, cautioned against the conceptual reliance on polycentricity as a way to enhance resilience, as sometimes such institutional structures may overlook the political dimensions of scale: regional organizations may impose agendas favoured by powerful actors and donors, favouring unfavourable 'local' solutions. Carefully balancing power dynamics across the different actors, including at multiple levels of governance, is therefore imperative to ensuring inclusivity and equity in resilience-building efforts. While decentralized governance allows effective management of food during a crisis at the local level, an excessive emphasis on the local level may undermine its intended objectives, hindering the potential for collective action across various organizational levels (Steel and Weber, 2001). Similarly, centralized and hierarchical governance structures undermine innovation, local action and resilience (McConney et al., 2014).

Nonetheless, the multi-level governance of the food system in the Maldives has potential for enhancing food system resilience. Highly interconnected, coordinated, semi-autonomous and multi-level governance allows for sharing of resources, locally tailored solutions, and addresses the needs of the most vulnerable. It balances decentralized and centralized control (Andersson and Ostrom, 2008, Ostrom, 2005), broadens the diversity of actors involved in the food system, and facilitates adaptable and inclusive responses (Matthews et al., 2022).

8.3 Conclusion

Islandness is not necessarily nor always a problem or an inherent cause of vulnerability for SIDS. Instead, islandness can create opportunities for SIDS to build and maintain resilience. In the Maldives, the sea-boundedness and smallness of the islands has enabled them to preserve their culture and create tight-knit communities. Long histories of food sharing, communal eating and preparation of food for religious occasions, and strong social networks permeate food activities, acting as strong forms of social capital for islanders. Being bounded by sea is not just a barrier; instead, it has enabled effective control and management of food during disruptions at the local level. The resources provided by sea have long provided sustenance for people (through, for example fishing and tourism) in the islands, which remains key economic and livelihood activities. The sea also acts as a conduit through which trade and movement of both material and non-material goods flow and thrive, facilitating connections between islands. The sea creates a connected and dynamic food environment. The small spatial size of the islands and populations facilitates efficient monitoring and coordinated responses to shocks, tailored to local contexts. Despite facing environmental challenges, islanders have everyday agency based on long-term exposure to environmental precarity that has fostered adaptive learning based on local knowledge and lived experiences, helping them to better anticipate and cope with disruptions. Thus, the spatial characteristics of islands do not make them 'inherently' vulnerable, instead they make islands complex, dynamic and unique places, bound together through global and local connections and socio-cultural contexts that contribute to resilience building. As Baldacchino (2005: 248) says, 'an island is a world; yet an island engages the world… it is a miniature universe; a bauble of community, society, ecology, economy.' This captures the idea that each island isdistinctive. The Maldives exemplifies this homogeneity distinctiveness: shaped by its specific colonial history, a long-standing seafaring and trade tradition, bilateral trade policies, shared religious identity, and strategic proximity to India..

With a focus on the Maldives, this thesis has shown that while the changing and complex landscape of food systems, global and local processes and risks, and unexpected shocks can threaten food system stability and resilience, food system resilience in SIDS can be

achieved, based on three factors; multi-scalar connectivity, social and cultural norms that enhance everyday agency within island communities, and adaptive governance in response to risks and sudden shocks. Resilience in a SIDS context is closely tied to global and local connections, networks and processes, which contribute to enhanced absorptive, adaptive and transformative capacities and agency of actors. This thesis has showed that cross-coordination across scales is vital for building resilience in dispersed island geographies such as the Maldives, as it facilitates flexible, inclusive, learning-based and collective governance. Global connectivity, as well as local agency within communities, helps islanders find solutions that best fit their adaptation needs and priorities.

This thesis makes three distinct contributions to knowledge. First, highlighting food system resilience in a SIDS, this thesis demonstrates how global connections including bilateral and trade relations as well as connections at lower spatial scales, such as inter- and intra-island networks, mediate risks to food systems and increase the resilience of food systems. It highlights the ways that island communities self-organize and foster collective actions in times of disruption. Second, this thesis contributes to knowledge on the social dimensions of SES resilience, revealing the significance of place based socio-cultural norms in enhancing resilience in food systems. It asserts that within island settings, strong social cohesion, networks, and capital - fostered through island identities and culture - shape reactions to food system shocks and disruptions and enhance the everyday agency of islanders. Third, this thesis contributes to the empirical research-based literature on resilience and governance in SIDS showing how multi-level governance fosters adaptive, coordinated, and collaborative food systems in dispersed island geographies.

However, this thesis acknowledges the trade-offs or the ‘downsides’ of analysing food security through a resilience lens in SIDS. While perceptions among islanders, as presented in this study, often equate food security with the steady availability of key staples in local stores, food security itself is a multidimensional construct involving not only availability but also accessibility, utilization, agency, stability, and sustainability. Through the exploration of food system risks across spatial scales (national, atoll, and local levels), this thesis has shown how these risks are interlinked and can create differential impacts across different groups of people. For example, in the Maldives, food prices are perceived to rise

progressively from Malé to the more remote local islands, while the quality of food deteriorates with each point in the distribution chain due to poor storage and infrastructure. Even at a national level, the issue of food quality—which relates directly to the utilization aspect of food security—raises concern, as islands may become dumping grounds for cheap, substandard food that lacks adequate nutritional and safety standards. It is evident from the case of the Maldives, that lax regulatory measures and limited resources to monitor food imports, coupled with the rising prevalence of non-communicable diseases, underscore a significant food security challenge that goes beyond availability alone. Furthermore, power imbalances create tensions between diverse actors and contribute to inequalities in decision-making and access to quality food. Place-based socio-cultural norms are shifting with high connectivity and access to global markets and dynamic internal politics. At the same time, geopolitics and climate change present risks and uncertain environmental futures which can further threaten the resilience of food systems in SIDS.

These less favourable aspects—such as poor nutritional quality and its implications for community health, differential impacts across scale and groups of people—demonstrate that, while a system may appear resilient in some ways, it can also produce negative outcomes at the local level. These reflections point to the need for caution when applying resilience theories to food security studies, as resilience frameworks can inadvertently oversimplify or essentialize community experiences unless closely examined through a human-centric approach that accounts for scale-specific impacts and responses.

The findings of this thesis have significant implications for future research and policies on adaptation and resilience of SIDS, particularly in the face of escalating environmental and geopolitical tensions and uncertainties. It underscores the importance of context and place in shaping resilience, emphasizing the necessity for future research to account for the diverse ways in which human interactions influence resilience in specific contexts and places. Applying a place-based and human-centric lens to critical assessments of resilience brings to the fore often marginalized islander narratives and discourses, uncovering the subtle everyday realities of island life and showing how shocks and disruptions are mediated through those everyday interactions. At the same time, taking scale into account,

this thesis reveals that while the normative scale of the 'everyday' is important, the interlinkages of adaptation actions across different spatial scales (local-national-global) are particularly significant for food systems analysis in dispersed archipelagic island nations – where a system may appear resilient, while creating inequalities in access within different groups and obscure larger commercial and public health challenges that shape the local food system. Thus, the findings of this thesis suggest that future research on the resilience of SIDS can benefit from place-based, context-specific and multi-scalar assessments that challenge colonial, homogenized and discursive assumptions of islands. Critical understanding of the context-specific capacities and agency of islanders, and the ways these contribute to resilience in SIDS, can inform development of policies that are relevant to, and appropriate for the local island level. The findings of this thesis can thus contribute to supporting SIDS and their people to better anticipate, absorb and adapt to future shocks and disruptions to their food systems.

The findings of this thesis are meaningful for the framing of SIDS in the international development context. While SIDS advocacy within the UN system has traditionally, and continues to, emphasise the distinct vulnerabilities tied to their unique geographic (e.g., small size, remoteness, dispersion) and socio-economic contexts, positioning SIDS as in need of external support to address escalating environmental and development challenges, this thesis demonstrates that applying a resilience framework can reveal a more nuanced perspective. Rather than focusing solely on a deficit- or vulnerability-based framing, it underscores the value of recognizing the unique heterogeneities within SIDS that actively shape their specific resilience narratives. The findings suggest that international development discourse should broaden to reflect the vulnerabilities and the resilience capabilities inherent to SIDS, acknowledging how distinct local characteristics contribute to resilience in ways that extend beyond conventional vulnerability paradigms.

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APPENDICES

Appendix 1: List of Interviewed Participants

Interviews conducted in Case Study Islands

#	Code	Pseudonyms	Occupation/Relevance	Sex	Age	Date	Island
1	M001	Anwar	Shop owner	M	45	Nov-21	Magoodhoo
2	M002	Naseema	Resident	F	60	Nov-21	Magoodhoo
3	M002	Nasiha	Resident	F	55	Nov-21	Magoodhoo
4	M002	Rabia	Resident	F	65	Nov-21	Magoodhoo
5	M003	Hamdha	Farmer	F	45	Nov-21	Magoodhoo
6	M004	Zareena	Farmer/WDC	F	60	Nov-21	Magoodhoo
7	M005	Zubair	Health Officer	M	60	Nov-21	Magoodhoo
8	M006	Ishaq	Council	M	48	Nov-21	Magoodhoo
9	M006	Anaz	Council	M	40	Nov-21	Magoodhoo
10	M006	Naeema	Council	F	30	Nov-21	Magoodhoo
11	M006	Nalina	Council	F	35	Nov-21	Magoodhoo
12	M007	Naeem	Farmer/Cooperative Society	M	58	Nov-21	Magoodhoo
13	M008	Hamid	Fisherman	M	67	Nov-21	Magoodhoo
14	M009	Rashad	Fisherman	M	56	May-22	Magoodhoo
15	M010	Samad	Resident	M	55	May-22	Magoodhoo
16	M011	Zaid	Resident	M	65	May-22	Magoodhoo
17	M012	Majeed	Resident	M	41	May-22	Magoodhoo
18	M013	Naufal	Shop owner	M	40	May-22	Magoodhoo
19	M014	Nizar	Guest house owner	M	49	May-22	Magoodhoo
20	M015	Hasna	Farmer	F	48	May-22	Magoodhoo
21	M016	Faheema	Resident	F	27	May-22	Magoodhoo
22	M016	Mariya	Shop owner/Resident	F	57	May-22	Magoodhoo
23	M016	Rashida	Resident	F	31	May-22	Magoodhoo
24	M016	Reena	Resident	F	54	May-22	Magoodhoo
25	M016	Ilham	Resident	F	57	May-22	Magoodhoo
26	M017	Imad	Shop keeper	M	57	May-22	Magoodhoo
27	M017	Seema	Resident	F	30	May-22	Magoodhoo
28	M018	Laila	Resident	F	75	May-22	Magoodhoo
29	M019	Ihsan	Resident	F	52	May-22	Magoodhoo
30	M020	Masood	Old/Historical Perspectives	M	100	May-22	Magoodhoo
31	M021	Nasra	Farmer	F	45	May-22	Magoodhoo
32	M021	Shafiya	Farmer	F	63	May-22	Magoodhoo
33	M022	Lubna	Farmer	F	57	May-22	Magoodhoo

34	M023	Yusra	Resident	F	56	May-22	Magoodhoo
35	M024	Samiyya	Farmer	F	55	May-22	Magoodhoo
36	M025	Shah	Shop owner	M	60	May-22	Magoodhoo
37	M026	Iqbal	Fisherman	M	45	May-22	Magoodhoo
38	M026	Arifa	Resident	F	40	May-22	Magoodhoo
39	M027	Humadha	Farmer	F	46	May-22	Magoodhoo
40	M027	Salih	Resident	M	50	May-22	Magoodhoo
41	M028	Nabeela	Resident	F	49	May-22	Magoodhoo
42	M028	Afiha	Resident	F	46	May-22	Magoodhoo
43	M029	Nabeel	Old/Historical Perspectives	F	105	May-22	Magoodhoo
44	M029	Salwa	Resident	F	63	May-22	Magoodhoo
45	M030	Nadira	WDC	F	55	May-22	Magoodhoo
46	M031	Fara	Resident	F	28	May-22	Magoodhoo
47	M032	Samah	Shop owner	M	36	May-22	Magoodhoo
48	M032	Lubana	Shop owner/ vendor	F	34	May-22	Magoodhoo
49	M033	Suhail	Old/Historical Perspectives	M	90	May-22	Magoodhoo
50	M034	Ihsana	Resident	F	65	May-22	Magoodhoo
51	M034	Yasmeen	Resident	F	29	May-22	Magoodhoo
52	M035	Wafa	Farmer	F	55	May-22	Magoodhoo
53	M036	Mahir	Resident	M	20	May-22	Magoodhoo
54	M037	Adham	Supply boat	M	60	May-22	Magoodhoo
55	F001	Imthiyaz	Resident	M	49	Mar-22	Felidhoo
56	F002	Ali	Shop owner	M	45	Dec-21	Felidhoo
57	F003	Abdul	Farmer	M	50	Dec-21	Felidhoo
58	F004	Aminath	Farmer	F	35	Dec-21	Felidhoo
59	F005	Hussain	Health Officer	M	32	Dec-21	Felidhoo
60	F006	Adam	Council	M	45	Dec-21	Felidhoo
61	F007	Hassan	Council	M	30	Dec-21	Felidhoo
62	F008	Hafsa	WDC	F	30	Dec-21	Felidhoo
63	F008	Fathimath	WDC	F	38	Dec-21	Felidhoo
64	F008	Asma	WDC	F	50	Dec-21	Felidhoo
65	F008	Afra	WDC	F	55	Dec-21	Felidhoo
66	F008	Adila	Council	F	28	Dec-21	Felidhoo
67	F008	Mariyam	Council	F	29	Dec-21	Felidhoo
68	F009	Ibrahim	Resident/ Former Fisherman	M	63	Mar-22	Felidhoo
69	F010	Zeeniya	Resident	F	65	Mar-22	Felidhoo
70	F011	Ahlam	Resident	F	65	Mar-22	Felidhoo
71	F012	Ilyas	Resident	M	74	Mar-22	Felidhoo
72	F013	Zainab	Resident	F	68	Mar-22	Felidhoo
73	F014	Fareena	Resident	F	19	Mar-22	Felidhoo

74	F015	Imran	Historian	M	74	Mar-22	Felidhoo
75	F016	Seema	Resident	F	28	Mar-22	Felidhoo
76	F017	Sharumeela	Shopowner/vendor	M	67	Mar-22	Felidhoo
77	F018	Nadwa	Resident	F	35	Mar-22	Felidhoo
78	F019	Usman	Shopowner/vendor	M	40	Mar-22	Felidhoo
79	F020	Shahida	Resident	F	19	Mar-22	Felidhoo
80	F021	Shadiya	Resident	F	54	Mar-22	Felidhoo
81	F022	Nahida	Resident	F	35	Mar-22	Felidhoo
82	F023	Adnan	Resident	M	35	Mar-22	Felidhoo
83	F024	Khalid	Resident	M	30	Mar-22	Felidhoo
84	F025	Asma	Resident	F	75	Mar-22	Felidhoo
85	F026	Ashraf	Resident	M	40	Mar-22	Felidhoo
86	F027	Ismail	Resident	M	55	Mar-22	Felidhoo
87	F028	Shaira	Shop owner	F	52	Mar-22	Felidhoo
88	F029	Nasira	Resident	F	26	Mar-22	Felidhoo
89	F030	Mohamed	Fisherman	M	49	Mar-22	Felidhoo
90	F031	Sama	Resident	F	68	Mar-22	Felidhoo
91	F032	Amira	Resident	F	67	Mar-22	Felidhoo
92	F033	Sara	Resident	F	36	Mar-22	Felidhoo
93	F034	Mausoom	Resident/shop owner	M	50	Mar-22	Felidhoo
94	F035	Aishath	Resident/ shop keeper	F	18	Mar-22	Felidhoo
95	F036	Faisal	Guesthouse owner	M	51	Mar-22	Felidhoo
96	F037	Muna	Resident	F	53	Mar-22	Felidhoo
97	F038	Naila	Resident	F	56	Mar-22	Felidhoo
98	F039	Najma	Resident	F	52	Mar-22	Felidhoo
99	F040	Ahsan	Resident/Fisherman	M	76	Mar-22	Felidhoo
100	F041	Nuha	Resident	F	41	Mar-22	Felidhoo
101	F042	Asiya	Resident	F	39	Mar-22	Felidhoo
102	F043	Shana	Resident	F	33	Mar-22	Felidhoo
103	F044	Akram	Resident	M	74	Mar-22	Felidhoo
104	F045	Shabana	Resident	F	44	Mar-22	Felidhoo
105	F046	Hamida	Resident	F	27	Mar-22	Felidhoo
106	F047	Rabia	Resident	F	31	Mar-22	Felidhoo
107	F048	Saleema	Resident	F	33	Mar-22	Felidhoo
108	F049	Hassaan	Resident	M	31	Mar-22	Felidhoo
109	F050	Abdulla	Shop owner	M	52	Mar-22	Felidhoo
110	F051	Zubaira	Resident	M	30	Mar-22	Felidhoo
111	F052	Nizar	Guesthouse owner	M	52	Mar-22	Felidhoo

Interviews outside of Case Study Islands

#	Code	Pseudonyms	Organization/Affiliation	Interview Date	Type
1	P01	Farzana	Ministry of Fisheries, Marine Resources and Agriculture	9/22/2021	In-person
2	P02	Salim	Ministry of Fisheries, Marine Resources and Agriculture	9/22/2021	In-person
3	P03	Nihad	Ministry of Fisheries, Marine Resources and Agriculture	9/22/2021	In-person
4	P04	Nazira	Ministry of Fisheries, Marine Resources and Agriculture	9/28/2021	Zoom
5	P05	Nishana	Ministry of Fisheries, Marine Resources and Agriculture	9/28/2021	Zoom
6	P06	Sinan	UNDP Maldives	9/22/2021	Zoom
7	P07	Zaina	UNDP Maldives	9/22/2021	Zoom
8	P08	Wafa	UNDP Maldives	9/22/2021	Zoom
9	P09	Migdad	Maldives Food and Drug Authority (MFDA)	10/14/2021	Zoom
10	P10	Ahmed	Ministry of Environment, Climate Change & Technology	11/10/2021	In-person
11	P11	Waseema	Health Protection Agency (HPA)	10/17/2021	Zoom
12	P12	Zuhaira	National Disaster Management Authority (NDMA)	1/5/2022	Zoom
13	P13	Sajida	State Trading Organization	1/26/2022	In-person
14	P14	Faiza	Ministry of Environment, Climate Change & Technology	2/3/2022	Zoom
15	P15	Safa	Agronational Cooperation	2/2/2022	In-person
16	P16	Sameeha	State Trading Organization	7/7/2022	In-person
17	P17	Azza	Maldives Ports Limited, North Harbour	7/7/2022	In-person
18	P18	Najiya	Maldives Ports Limited, North Harbour	7/7/2022	In-person
19	P19	Shamin	Maldives Ports Limited, Port	7/8/2022	In-person
20	P20	Assad	Maldives Port Health	7/8/2022	In-person
21	CS01	Nisha	NGO Representative	2/19/2022	Zoom
22	CS02	Lamya	NGO Representative	2/22/2022	Zoom
23	CS03	Samira	NGO Representative	2/20/2022	Zoom
24	CS04	Sharif	NGO Representative	2/21/2022	Zoom
25	FT01	Aman	Food Import/Trader	6/28/2022	Zoom

26	FT02	Haris	Food Import/Trader	7/6/2022	In-person
27	H01	Bassam	Historian	3/11/2022	In-person
28	P21	Shamil	Ministry of Economic Development	27/05/2022	Zoom

Appendix 2: Interview Plan and Guiding Questions

At the commencement of the interview, the interviewer will:

- outline the research project;
- explain what the interviewee will be asked to do; and
- provide the interviewee with the consent form and explain its terms, and invite the interviewee to sign it once the interview is over or verbally gain consent at the beginning.

The following is a list of discussion points for each of the four categories of participants.

- Initial questions will be open, with closed questions to be used as prompts.
- Some discussion points may be altered or omitted depending on the person being interviewed.

PARTICIPANTS IN CATEGORY 1: POLICY MAKERS (N=10 TO 15)

Your background

- What is your role in the organization?
- What is the organizations role in food security related policy making in the country?
- How long have you been working in this sector; please provide a brief overview of your experiences in the sector so far

How is food security achieved at a national level?

- What type of food are locally produced and imported?
- Where do most food come from?
- What kind of food are mostly consumed?
- How has food security context changed overtime?

Factors affecting overall food security in the country

- What environmental factors do you think affects food security in the country?
- What socio-economic factors do you think affects food security in the country?
- Do you think food security concerns are worsening overtime? If yes, how have they changed and evolved over the years
- How do in particular, global environmental change affect food security in the Maldives?
- How do you think COVID-19 has impacted food security in the country?
- How does disruptions to supply chain in particular affect food security in the Maldives?

- How resilient are people to these changes? What is the role of the government in facilitating coping mechanisms in crisis situations?

Challenges/opportunities to achieving food security

- What are the key challenges to achieving food security in Maldives?
- In particular, what are the challenges associated with storage and distribution at a local scale?
- How can these be further improved in the phase of socio-ecological changes described earlier?
- What is the vision of the government in addressing the food security issues?
- Please provide a brief overview of key policies relevant
- How have polices changes and evolved overtime?

PARTICIPANTS IN CATEGORY 2: KEY ACTORS INVOLVED IN PRODUCTION, PROCESSING, DISTRIBUTION AND CONSUMPTION IN THE SELECTED CASE STUDY ISLANDS (N=10 TO 15)

Your background

- What do you do for a living?
- How long have you been living in this island for?
- How long have you been a [farmer/fisherman/shop owner/vendor/guesthouse owner]? Please provide an overview of your experience in the sector so far

How is food security achieved at a local scale in the island? [these questions will be tweaked depending on the type of actor been interviewed]

- What type of food are locally produced?
- What type of foods are mostly imported into the island?
- Where do most food consumed come from?
- What kind of food are mostly consumed?
- How is food distributed in and out of the island?
- How has food security context changed overtime?
- How are you involved or how do you interact with other key players in the local food system to achieve food security?

Factors affecting overall food security in the island

- What environmental factors do you think affects food security in the country?
- What socio-economic factors do you think affects food security in the country?

- Do you think food security concerns are worsening overtime? If yes, how have they changed and evolved over the years
- How do in particular, global environmental change affect food security in the island?
- How do you think COVID-19 has impacted food security in the island?
- In the wake of such disruption, do you think you have faced severe challenges to supply chains? If so how?
- How do you adapt to such changes? What do you do in such a crisis situation?

Challenges/opportunities to achieving food security

- In your opinion as a key actor in the local food system, what are the key challenges to achieving food security in the island? [including production, processing, distribution, and consumption challenges]
- In particular, what are the challenges you face working with so many different actors? How do you cope with these?
- How can these be further improved in the phase of socio-ecological changes described earlier?
- What are your views on the current policies and regulations relating food security in the country?
- How have polices changes and evolved overtime?
- At a local community level, how do you work/what do you do in tackling food security issues?

PARTICIPANTS IN CATEGORY 3: RANDOMLY SELECTED RESIDENT HOUSEHOLDS IN THE CASE STUDY ISLAND (N=30 TO 40)

Your background

- Basic demographics; name, age, sex
- What do you do for a living?
- How long have you been living in this island for?

Household level food security context

- What type of food do you mostly consume? [locally produced or imported?]
- Do you consume a lot of processed food? Where do they come from?
- Do you produce any food in your backyard/house? [ethnographic style of interview with backyard tours if possible]
- What do you do with these products?
- How have your cooking and consumption patterns changed overtime?
- How would you describe your overall food security context of the household?

Factors affecting overall food security in the household

- What environmental factors do you think affects food security in the household?
- What socio-economic factors do you think affects food security in the household?
- Do you think food security concerns are worsening overtime? If yes, how have they changed and evolved over the years
- Do you think environmental change is a factor that contributes to food security in your household? Please describe your answer further
- How do you think COVID-19 has impacted food security in your household?
- How do you adapt to such changes? What do you do in such a crisis situation?

Challenges/opportunities to achieving food security at a household level

- In your opinion, what are the key challenges to achieving food security in your island?
- How can these be further improved in the phase of socio-ecological changes described earlier?
- What are your views on the current policies and regulations relating food security in the country?
- At a local community level, how do you work/what do you do in tackling food security issues?
- What would you like to see happening in the future, to tackle the food security issues/challenges described?

Appndix 3: Human Ethics Approval

Office of Research Ethics and Integrity

Human Ethics Application Approval

ATTENTION: Dr Celia McMichael

6477 - Geography
203 - Science
The University of Melbourne

Research Application

Reference Number: 2021-21823-20959-3
Project Title: Food Security in a changing and complex world; Perspectives from Maldives as a Small Island Developing State (SIDS).

Dear Dr Celia McMichael,

Thank you for your response to queries raised by the LNR 2B ethics committee at a meeting held on 11 August 2021.

The Committee agreed to **approve** your revised application on the basis that it meets the requirements of the National Statement on Ethical Conduct in Human Research (2007, Updated 2018). Please see overleaf, *Summary Details for the Approved Human Ethics Project* and *Conditions of Approval*. It is your responsibility to ensure that all people associated with the Project are made aware of what has been approved.

Desk-based elements of your project and face-to-face research can commence now, as can data collection that can be conducted online or via telephone, subject to necessary approvals or amendments to ethics applications. Please remember to update your PLS with the ethics number of the project before sending to participants.

Please consult the COVID-19 website for research guidance, FAQ and updates: https://staff.unimelb.edu.au/covid-19-response/research-activity.

If you have any queries on these matters, or require additional information, please contact me using the details below. Please quote the ethics ID number and the title of the Project in any future correspondence.

Yours sincerely,

Ms Michelle Grainger

Research Ethics Officer

Human Ethics Team
Office of Research Ethics and Integrity | Research, Innovation & Commercialisation
Level 5, Alan Gilbert Building, 161 Barry Street, Carlton
The University of Melbourne, Victoria 3010, Australia
E: michelle.grainger@unimelb.edu.au

Summary Details for the Approved Human Ethics Project

Project Title:	Food Security in a changing and complex world; Perspectives from Maldives as a Small Island Developing State (SIDS).
Reference Number:	2021-21823-20959-3
Approval Date:	31.8.21
Expiry Date:	31.8.24
Responsible Human Ethics Committee	LNR 2B
Project Supervisor	Dr Celia McMichael
Other Investigators	Prof Uma Kothari, Mrs Anaa Hassan
External Investigators	

Documents table:

Document Type	File Name	Date	Version

Other	DMP_V01_29Jun21	01/07/2021	1
Focus group questions and/or themes	Focus Group plan_V01 1st July 2021	01/07/2021	1
Interview questions and/or themes	Interview plan_V01 1st July 2021	01/07/2021	1
Consent form	Interviews Consent_Script_V01_21 July 2021	21/07/2021	1
Consent form	Focus Group Consent_Script_V01_21 July 2021	21/07/2021	1
Recruitment materials	Recruitment document_V01 1st July 2021	21/07/2021	1
Recruitment materials	Interview PLS_V02_21stJuly2021	21/07/2021	1
Recruitment materials	FocusGroupPLS_V02_21stJuly2021	21/07/2021	1
Plain Language Statement (PLS)	Interview PLS_V03_18Aug2021	18/08/2021	2
Plain Language Statement (PLS)	FocusGroupPLS_V03_18Aug202	18/08/2021	2
Other	Anaa Hassan Ethics Revisions	18/08/2021	1

Conditions of Approval:

Research projects are normally approved to the anniversary date of the approval. Projects may be renewed yearly for up to a total of three years upon receipt of a satisfactory annual report. If a project is to continue beyond three years, two optional extensions of one year each (3+1+1) will need to be applied for. Anything beyond 5 years will need a new application to be submitted.

Please note that the following conditions apply to your approval. Failure to abide by these conditions may result in suspension or discontinuation of approval and/or disciplinary action.

1. **Limit of Approval:** Approval is limited strictly to the research as submitted in your Project application.
2. **Variation to Project:** Any subsequent variations to the Project must be notified formally to the Committee for consideration and approval before they are implemented. If the Committee considers that the proposed changes are significant, you may be required to submit a new application.
3. **Incidents or adverse events:** Researchers must report immediately to the Committee anything that could affect the ethical acceptability of the project, including adverse effects on participants or unforeseen events. Failure to do so may result in suspension or cancellation of approval.
4. **Monitoring:** All projects are subject to monitoring at any time by the Committee.
5. **Annual Report:** An annual report must be submitted each year on the anniversary of project approval, and at the conclusion of the project. Ethics approval will lapse if an annual report is not submitted.
6. **Auditing:** All projects are subject to audit by members of the Committee.

Appendix 4: Plain Language Statements, Verbal Consent Scripts and Recruitment Documents

Plain Language Statement

School of Geography, Earth and Atmospheric Sciences

***Project Title:* Food security in a changing and complex world: Perspectives from Maldives as a Small Island Developing State (SIDS)**

Researcher: Ms. Anaa Hassan (PhD student), Email: hassanmh@student.unimelb.edu.au
Supervisors: Associate Prof. Celia McMichael at celia.mcmiachel@unimelb.edu.au; Prof. Uma Kothari at uma.kothari@manchester.ac.uk

Introduction

Thank you for your interest in participating in this research project. The following few pages will provide you with further information about the project, so that you can decide if you would like to take part in this research.

Please take the time to read this information carefully. You may ask questions about anything you don't understand or want to know more about.

Your participation is voluntary. If you don't wish to take part, you don't have to. If you begin participating, you can also stop at any time.

What is this research about?

This project examines the ways in which environmental, social, and economic conditions affect food security in selected case study islands, with a particular focus on vulnerability and resilience to climate change, trade and supply chain disruptions, and the more recent COVID-19 pandemic.

What will I be asked to do?

Should you agree to participate, you are invited to provide information and insights on the research topic, through an interview with Ms. Anaa Hassan. She will ask you questions about your role as a key policymaker in the field. Questions would in general be framed to understand the ways in which people in your Maldives meet their food needs, the environmental, social and economic factors affecting food security and strategies taken to adapt to these challenges. She will also ask you to share your views about the existing food security related policies relevant to your context.
Whether you choose to be interviewed is entirely up to you and you can withdraw your consent to the interview at any time for any reason. We estimate that the interview will take no longer than one hour. Interviews will be conducted by Ms. Anaa Hassan at a mutually convenient time and venue. Interviews will be audio-recorded, and Ms. Anaa Hassan will also take written notes.

What are the possible benefits?

The research will provide enhanced understanding of food security in the selected case study island and also contribute to the existing literature on food security in SIDS by bringing in rich islander perspectives into it. It will advance understanding of food system resilience in the context of social and environmental change and provide policy insights on ways to further increase food security in islands.

What are the possible risks?

We do not anticipate any risk for participants in this study.

Do I have to take part?

No. Participation is completely voluntary. You are able to withdraw at any time. If you decide to participate in an interview, you will be asked to indicate that you have read or/and understood this information by verbally giving consent.

Will I hear about the results of this project?

The findings of this research will be disclosed as a thesis/book and individual chapters maybe published in scientific journals or on the university website. Results may also be presented and discussed at local, national and international conferences relating to food security. All procedures will be in place to ensure that the anonymity of all participants are respected in any publications that come out of this study.

What will happen to information about me?

The information provided will remain strictly confidential and you will not be identified by your answers. You and/or your organizations name will not be disclosed in any way. Data will be compiled as a whole with no individual responses tied to your name or any identifying information about you. In case your words are quoted, your name will not be disclosed and instead a generic reference to your position (eg: 'government official', 'farmer', 'fishermen') will be used.

The recording of the interview will be stored securely, in a password protected computer for at least five years in accordance with the University's storage policies. It will be available only to the researchers. If you ask to withdraw from the project at any time, we will destroy all records of your interview. You will not be asked to disclose confidential information. If at any point you believe you may have mistakenly disclosed confidential information, please inform Ms. Anaa Hassan and she will not use that information in her research.

The data collected will be stored at the University of Melbourne for a minimum of 5 years, however, the interview transcripts will be deidentified to ensure anonymity.

Funding

This PhD is funded by both the University of Melbourne and University of Manchester.

Where can I get further information?

If you would like more information about the project, please contact Ms. Anaa Hassan on **+9607909886** or via hassanmh@student.unimelb.edu.au; Associate Prof. Celia McMichael at celia.mcmichael@unimelb.edu.au; or Prof. Uma Kothari at uma.kothari@manchester.ac.uk

Who can I contact if I have any concerns about the project?

This project has human research ethics approval from The University of Melbourne [Ref: 2021-21823-20959-3]. If you have any concerns or complaints about the conduct of this research project, which you do not wish to discuss with the research team, you should contact the Research Integrity Administrator, Office of Research Ethics and Integrity, University of Melbourne, VIC 3010. Tel: +61 8344 1814 or Email: research-integrity@unimelb.edu.au. All complaints will be treated confidentially. In any correspondence please provide the name of the research team and/or the name or ethics ID number of the research project.

Informed Consent Verbal Script – Interviews
School of Geography, Earth and Atmospheric Sciences

***Project:* Food security in a changing and complex world: Perspectives from Maldives as a Small Island Developing State (SIDS)**

Responsible Researcher: Ms. Anaa Hassan (PhD student), Email: hassanmh@student.unimelb.edu.au

Supervisors: Associate Prof. Celia McMichael at celia.mcmiachel@unimelb.edu.au; Prof. Uma Kothari at uma.kothari@manchester.ac.uk

My name is Anaa Hassan, and I am a PhD candidate at the University of Melbourne and Manchester. My PhD is funded by a dual Melbourne/Manchester research scholarship. I am conducting research to understand the vulnerabilities and the resilience of local food system in your island and I am particularly interested in your experience as a [key policy maker/farmer/fishermen/distributor/local resident/guesthouse owner etc]. Your participation will involve one informal interview that will last between 45-60 minutes.

This research has no known risks. This research will benefit the academic community and also provide useful policy insights in enhancing the resilience of local food systems in the island and other small island developing states.

Please note that your participation is completely voluntary and is only for research purposes. You are free to withdraw from this interview anytime without explanation or prejudice. Your privacy will be protected throughout the study. Your identity or personal information will not be disclosed in my thesis or any publications that may result from this study. Notes taken during the interview will be stored in a secure location.

I can supply you with the written information sheet (PLS) which would also have contact information regarding the study if required.

Would it be alright if I audiotaped our interview? It will only be used for note taking purposes. Saying no to the audio recording will have no effect on the interview.

Do you have any questions before we get started?

Sample Email of Invitation for Recruiting participants for interviews and focus group discussions

Project Title: Food Security in a changing and complex world: Perspectives from Maldives as a Small Island Developing State (SIDS)

Researcher: Anaa Hassan

Note: This email invitation will be used to recruit key policymakers/government officials and any key actors for interviews and/or focus group discussions, relevant to the study. The email will be addressed either personally to the person identified or to the head of the relevant department in the selected ministry/office. It will be adjusted according to the particular experience of the person or the targeted organization and tailored to reflect my understanding of the person's or organization's work and experience. The PLS will be attached to this email.

Dear_____,

I am a PhD student at School of Geography, Earth and Atmospheric Sciences at the University of Melbourne, researching the environmental and socio-economic conditions affecting the local food systems in selected 1 or 2 case study islands in the Maldives, with particular focus on vulnerability and resilience to global environmental change, trade and supply chain disruptions, and the more recent COVID-19 pandemic. As part of this project I am seeking information about the key processors and actors relevant to the local food system of the [name of the case study island]. The project will also consider perceived environmental and socio-economic factors affecting the local food system in the island and strategies taken to adopt to these changes/disruptions.

[For policy interviews with key government officials]:

> Given your experience as a key policy maker in the sector, I am writing to ask whether you would consider participating in an interview to discuss the food security context in the Maldives and particularly the key food security policies in the country . Further information about the project and the conduct of the interviews is set out in the attached 'Plain Language Statement'.

[For interviews with key local actors such as key producers (farmers, fisherfolks), processors, distributors (corner shop owners, vendors etc), and consumers (guesthouses, resorts)]:

> Given your role as a key actor instrumental to the local food system in the island [insert name of case study island], I am writing to ask whether you would consider participating in an interview or focus group to share your experiences and perceptions around the issue of food security context in your island. Further information about the project and the conduct of the interviews is set out in the attached 'Plain Language Statement'.

If you are willing to participate in an interview or focus group (delete as applicable) I would be grateful if you could contact me on the details below. I intend to visit your island [name of the island] on [dates] so please let me know if there is a time and place that would be convenient for you to meet during that period. I anticipate that the interview would take between 45 minutes and an hour of your time. I am of course very happy to answer any questions you might have and provide you with further information about the research project.

At your request, I am also happy to provide you with a list of interview questions prior to the interview. Thank you for considering my request and for any assistance that you can provide.

Yours sincerely,

Anaa Hassan
PhD Candidate, School of Geography, Earth and Atmospheric Sciences
Email: hasanmh@student.unimelb.edu.au
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Appendix 5: Thematic mind-map of key findings