Republic of the Marshall Islands National Food Systems Summit Dialogues
Pre-Pathway Document

September 2021

Acknowledgements

This pre-pathway document is the culmination of the commitment of the Government of the Republic of the Marshall Islands (RMI) to the United Nations Food System Summit 2021 and is the product of a number of National Dialogues held during July and August 2021.

These dialogues were organized and developed by the RMI Ministry of Natural Resources and Commerce in collaboration with the Marshall Islands Marine Resources Authority, the RMI Ministry of Health and Human Services and the Island Sustainability Unit of Sophia University, Tokyo, Japan with the support and guidance of the UN Resident Coordinators Office.

This process would not have been possible without the insight, expertise and commitment of all those who participated in the Dialogues from all sectors of Marshallese society and beyond.

Contents

1. Foods Systems in the Republic of the Marshall Islands

The Republic of the Marshall Islands (RMI) is a unique country. Comprising 34 coral atolls that combine to a landmass of 180 km^2 it is recognized as a small island developing state (SIDS). However, it is by any reckoning a large ocean state, with an Extended Economic Zone (EEZ) that covers 2.1 million km^2 of the Pacific Ocean. The 54,705-strong population of the RMI lives across 24 of the country's atolls but with a clear trend of urban migration to Majuro and Kwajalein atolls. The RMI supports biodiversity of global significance, lying within the Polynesia-Micronesia biodiversity hotspot. The food systems of the RMI today reflect and must respond to these and many other factors, including its geographical position, the geology of its islands, the scale and richness of its waters, the culture of the RMI people and its modern history. Importantly, it cannot be ignored that the RMI is a country truly on the front lines of climate change. Adaptation to climate change is essential to secure the future of the RMI, and this adaptation must include the national food system.

As with many SIDS, the RMI faces a number of challenges that makes the country vulnerable to food insecurity. These include its limited land mass and lack of arable land, fragile natural environments, a narrow resource base and reliance on its ocean resources. It also demonstrates a high level of dependence on food imports, particularly processed food, which make up more than 80% of food imports. The RMI is highly vulnerable to climate change, external economic shocks and natural disasters. The remoteness of the country and its distance from global markets results in high costs for energy, transportation and communication.

RMI also lives with the legacy of nuclear testing. This negatively influences the RMI food system and national food security in a number of ways. It is one reason for in-country migration, adding to the growth of urban areas and the pressures on limited available urban lands. In addition, it has directly removed some areas of the RMIs land and seas from the food system altogether owing to high radiation levels. There is also the potential that impacts on the health of ocean ecosystems have reduced productivity, though this is not clear.

The RMI therefore faces numerous challenges related to the natural environment, climate change and their nuclear legacy. Together, these highlight the need for the transformation of the RMI food system to one that is more sustainable and resilient to external factors.

Overall, 90% of the RMI food supply chain is made up of imported goods. This, alongside low production and consumption of traditional and local healthy and nutritious foods, has resulted in a national diet that is driving a number of major health issues such as malnutrition, child hunger, stunting, obesity, and various non-communicable diseases (NCDs). According to the Community Survey conducted in 2006, 35% of RMI households did not always have sufficient food for all family members. Although the majority of RMI households appeared to be food secure (59.8%), 7% were mildly food insecure, 13.4% moderately food insecure and 19.7% severely food insecure.

In order to address food and nutrition challenges in SIDS, and to help achieve the 2030 Agenda for Sustainable Development, the Sustainable Development Goals (SDGs) and the SAMOA (SIDS Accelerated Modalities of Action) Pathway call for strengthened international cooperation and partnerships. Under this framework, the RMI National Strategic Plan (NSP) 2020–2030 sets out a roadmap for progress around five Pillars, comprised of 24 Strategic Areas that include land, agriculture, marine resources, health and cross-cutting issues such as climate change and resilience. The NSP Vision Statement focuses on continuing to build a resilient, productive and self-supportive RMI: "*Kallib Bwe Kwon AKEO*; *In our own hands is our future*." To successfully meet national and regional targets, food systems in the RMI need to be at the center of development discussions and decision making. The Ministry of Natural Resources and Commerce is integral to this, and already has a range of activities planned and in place to support sustainable food systems in the RMI. The RMI National Food System Summit Dialogues were organized as a recognized route to achieving the NSP Vision Statement and to further supporting the ongoing efforts already in place.

Blue foods

Around the globe, approximately 800 million people make their living in blue food systems, mostly in small-scale fisheries and aquaculture. Blue foods are essential to supporting healthy diets, are culturally and economically critical, and are central to resilience in the face of climate change and market fluctuations. This is true not just for the RMI but for most Pacific SIDS, where blue foods are the mainstay of regional food security. Blue foods are also a priority for nutrition and food security and income

opportunities in communities across the RMI, as well as having a high level of social and cultural importance. If undertaken sustainably, blue food production can support food and nutrition security in a way that has less of an environmental impact than other sources of animal-based food.

As a nation with a rich maritime history that includes the art and science of wave navigation and stick charts, it is perhaps unsurprising that the ocean is central to the country's economy and strategic development. As a Party to the Nauru Agreement, the RMI gains revenue under the Vessel Day Scheme through selling a pre-set number of days' access to fish the RMI EEZ. This scheme generates up to around $30 million (but will fluctuate depending on market prices) for the RMI and does so in a manner that is designed to conserve tuna fish stocks. The RMI NSP 2020–2030 includes Marine Resources as a pillar of economic development, with a goal of "Sustainable and Responsible use of Marine Resources." Though the focus is on fisheries as a source of revenue (through the selling of fishing licenses to commercial fishing companies), the role and potentials of the blue foods system in ensuring future sustainability for the RMI along with the immense opportunities for economic and social development it brings is clear. This potential is encapsulated in the National Oceans Governance Vision of the National Guiding Principles to Sustain and be Sustained by Our Ocean and Coral Reefs: "*As a large ocean nation with a rich history in sustaining and being sustained by the resources of the sea, we commit to ensuring that our resilience in the face of global oceans challenges endures for generations to come*."

The fisheries sector in the RMI comprises two main sub-sectors: coastal fisheries (inshore and near-shore) and oceanic fisheries (offshore, within the RMI EEZ). Coastal fisheries resources are typically utilized by individual households for subsistence, and to some extent for sale within urban areas. According to the Fishery Policy in the Marshall Islands (2005) approximately 1,500 to 1,700 metric tons of fish are harvested and consumed by households annually. Subsistence fishing is a significant household activity, with 66–85% households engaging in this type of fishing. Consumption of fishery products in the RMI has been calculated at 38.9–59.0 kg/year per capita. Oceanic fishing in the RMI EEZ has primarily concentrated on the harvest of wild tuna and billfish species, including skipjack, yellowfin, bigeye and blue marlin. Commercial tuna operations, mainly using longline, pole-and-line, and purse seine technologies, are primarily undertaken by fleets from Japan, Taiwan, China and the US. This has produced annual revenues from the sale of fishing rights of between US$1.5 million and US$3.5 million over the past few years.

Fisheries in the RMI are regulated, promoted and managed in terms of resource sustainability by the Marshall Islands Marine Resources Authority (MIMRA). MIMRA is responsible for policies, regulations and the monitoring of all types of coastal and oceanic fisheries, as well as aquaculture and mariculture activities that include supporting oyster and clam production. MIMRA acts as a business and broker for small fishers, as well as a regulator for larger private companies operating in domestic and international waters. The involvement of MIMRA in the RMI food system extends to its transportation of artisanal fishers' catches from the Outer Islands to Majuro markets, and the promotion of consumption of domestic blue foods across the country.

There are, naturally, threats to fisheries in the RMI, and these vary from coastal to oceanic fisheries. Broadly speaking, however, these include climate change, overharvesting, pollution, water quality issues, poaching, unregulated fishing methods, land/sea rights, limited capacity and community awareness. That being said, the RMI's strategic location in the central Pacific, along with its large ocean area and natural resources, provides an excellent platform to build a sustainable economy and a healthy and prosperous society with blue foods at its heart.

The RMI Food Security Policy 2013 has as its goal "*To ensure access to nutritious, quality, safe and affordable food for all Marshallese people at all times*." Blue foods, which are rich in bioavailable nutrients, can play an essential role in this. The RMI Food Security Policy specifically identifies fish as being a very important component of the national diet, particularly in the outer islands. The security of community marine resources and the sustainable management of coastal and inshore fisheries and aquaculture are seen as being priorities for achieving food security, putting blue foods at the heart of the RMI national food system.

Green foods

Agriculture was traditionally a key component of the Marshall Islands' economy, with an emphasis on permanent crops and plantations. Nearly all families were once involved in agriculture, however, the 2011 national census reported a small majority of

52% of households being engaged in raising crops. Among these households, 42.2% were growing crops for subsistence, 10.2% for both income and subsistence and just 0.2% for income alone. Although the census considered 64% of the total land area of the Marshall Islands to be arable, only 11% of the RMI was used for crop production at that time.

There is recognition that underutilized land with the potential for conversion to agriculture is limited in the RMI, soil conditions are generally poor, and few people are engaged in farming. Challenges also include limited water supply, loss of traditional knowledge and climate change. Furthermore, the production of copra is a significant industry across the RMI with the price of copra approximately tripling by unit weight in recent years. This has naturally encouraged an increase in household emphasis on the harvesting of coconuts and production of copra. One impact of this, however, is the disincentivization to grow diverse crops, grow a home garden or undertake artisanal fishing and to instead use the increased household income to purchase imported foodstuffs. There is, therefore, an impact on the overall food system and an associated food security risk attached to this otherwise successful aspect of the RMI economy.

Despite these challenges, agriculture forms one of the pillars for economic development within the RMI NSP 2020–2030. Alongside this plan, and a number of other policies including food security and trade policies, sits the RMI Agriculture Sector Plan 2021–2031. This Plan reports that in 2006 only 0.3% of the labor force were engaged in agriculture of forestry activities as their main economic activity. Agricultural production also represents a very small proportion of the RMI economy, contributing approximately 4% to GDP, with the principle commercial crops being coconut and breadfruit. In 2014, agriculture and forestry combined represented 1.2% of total export value.

The goal of the Agriculture Sector Plan is "*Resilient food, nutrition and livelihood security of Marshallese in the face of climate change*" with a number of outputs identified to supports its achievement. These include minimizing environmental degradation, developing sustainable small livestock and crop production systems, increasing consumption of locally produced nutritious foods, improving biosecurity and marketing, improving the capacity of agriculture sector stakeholders and developing enabling policies and legislation. The plan further aims to increase community level involvement in agriculture and increase national domestic food production.

The RMI Food Security Policy 2013 has as its goal "*To ensure access to nutritious, quality, safe and affordable food for all Marshallese people at all times*." Five strategic action areas support this goal and broadly include stimulating sustainable local food production, strengthening access to nutritious food, education, facilitating efficient food distribution and building safety, quality and resilience food supply and production. Expanding the green foods system within the RMI is integral to achieving this goal and to supporting a diverse and resilient national food system.

Nutrition, health and food safety

A rapid scan of the RMI agriculture/nutrition nexus conducted in 2018 reports that numerous diet-related health issues have become prevalent in the RMI, with up to 80% of the population being overweight, 27% having diabetes and 35% of children between 48 and 59 months of age having stunted growth. A 2018 Hybrid Survey examining non-communicable diseases identified that 6.5% of adults in RMI eat a diet consisting only or mainly of local foods, with 37.4% eating mainly imported foods and 37.4% eating a balance of imported and local foods. Almost all adults eat less than the recommended five servings of fruit and vegetables per day.

The rapid scan also recognises the urgent need for a comprehensive government, inter-ministerial, inter-agency, cross-sectoral response to reduce the level of both imported food consumption and nutrition-related non-communicable diseases, with fishers identified as key partners for achieving this.

In terms of food safety, an FAO Technical Cooperation Programme *Strengthened Food Control in the Republic of the Marshall Islands* was established in 2014. A 2017 mission under this program identified that, at that time, limited capacity and coordination between relevant agencies meant that the 2010 Food Act was not being effectively implemented. There were no food inspectors, and responsibilities were being shared across agencies.

The RMI national food system, and considerations of its transformation, cannot be considered without taking issues of nutrition, health and food safety into account. These factors underpin food production and consumption choices and guide decision making to support a healthy, prosperous, and sustainable food system.

Climate change

One of only four atoll countries in the world, the RMI faces several climate-related threats, including sea level rise. The impact of rising seas, along with high tides and frequent storms, have reduced the amount of available land and water for food production. Due to the nature of the atolls in the RMI, a one-meter rise in sea level would be disastrous. As an example, 80% of Majuro Atoll would be lost under this scenario. Other climate-related impacts relate to increased temperature, which is likely to change the duration of crop growing seasons, increase the amount of water required to produce a unit yield, and be conducive to the spread of pests and diseases.

Extreme events related to climate change impact food security due to changes in agricultural productivity and food supply, exacerbating rural poverty, driving emigration and triggering the overexploitation of resources. Droughts are considered one of the most frequent impacts to the RMI, resulting in economic losses estimated at US$ 4.9 million in 2015–2016 alone. It is clear, therefore, that the implications of climate change in the RMI will be wide-ranging and have the potential to significantly damage the nation's food system as it currently stands.

In terms of blue foods, climate change will increasingly affect the health and productivity of fish stocks and aquatic ecosystems, with changing ocean temperatures likely to affect migratory patterns and spawning cycles. Such impacts would have major implications for food security, livelihoods and the national economy. Climate change will also present numerus threats to the green foods system, with SIDS such as the RMI likely to experience changing water regimes, increased storm and cyclone frequency and severity, drought and fire, crop inundation and soil salinization, as well as an increase in invasive species, pests and diseases.

Any impacts on food production systems will have inevitable consequences for nutrition, health and food safety. With current levels of nutrition-related health problems and non-communicable diseases, any loss to local food production could be disastrous, highlighting the need for a diverse and resilient food production sector.

In summary, there is a clear need for transformation of the RMI food system from its current status to one that is not reliant on imported, processed foods but has sustainable systems of green and blue production embedded in communities in a way that is resilient to natural disasters and the impacts of climate change and provides a nutritious diet that supports healthy and prosperous communities.

2. Organizing the Republic of the Marshall Islands National Food Summit Dialogues

Organization of the RMI National Food Systems Summit Dialogues represents a commitment by the government of the RMI not only to consider the current status of the nation's food system but also to explore how best to transform this system for a sustainable future. The Dialogues were planned, executed and facilitated by a team comprising personnel from the Ministry of Natural Resources and Commerce, the Ministry of Health and Human Services and the Marshall Islands Marine Resources Authority in collaboration with the Island Sustainability Unit of Sophia University, Japan and under the guidance of UN Resident Coordinator Office personnel.

Establishing Priorities for the Republic of the Marshall Islands National Food Summit Dialogues

Following the initial RMI National Food Systems Summit Dialogue, which focused on Action Track 1 and Action Track 2, the organizing team developed three further 3-hour RMI National Food System Dialogues. These focussed on a) Green Food Systems, b) Nutrition, Health and c) Safety and Blue Food Systems. All three Dialogues were conducted in the week of 23rd August 2021. The decision to conduct the Dialogues in this way was based upon an in-depth understanding of the current national food systems and their associated priorities, as well as the capacity of individuals to attend the Dialogues.

The Dialogues were organized by the RMI national-level convener at the Ministry of Natural Resources and Commerce, supported by a team of consultants from the Island Sustainability Unit, Sophia University, Japan, relevant stakeholders from the Ministry of Natural Resources and Commerce, the Ministry of Health and Human Services and the Marshall Islands Marine Resources Authority to guide the individual Dialogues, and personnel from the Resident Coordinator Office in the Pacific. The development process involved in-depth collaborations and discussions between all team members to ensure all aspects of the Dialogues, from discussion content to logistical aspects, were comprehensively planned and efficiently executed.

The five UN Food Systems Summit Action Tracks were at the forefront of the Dialogue planning process, with Dialogue themes and discussion topics designed to respond to these.

UN Food Systems Summit Action Tracks

Action Track 1
Ensure access to safe and nutritious food for all

Action Track 2
Shift to sustainable consumption patterns

Action Track 3
Boost nature positive production

Action Track 4
Advance equitable livelihoods

Action Track 5
Build resilience to vulnerabilities, shocks and stress

Invitee lists were developed to reflect the content of the individual Dialogues. Invitees ranged from national-level government personnel to members of civil society engaged in different aspects of the food systems of the RMI. This enabled discussions to engage a range of people from those responsible for guiding national policy to those impacted by such policies. Many invitees attended all Dialogues, allowing a consistency of knowledge within discussions and providing for the linking up of content across the Dialogues.

Prior to the Dialogues, invitees received an official invitation, a copy of the Dialogue agenda, relevant materials and a link to an electronic attendance form. Printed attendance forms were also provided at the Dialogues to ensure full completion and submission by all participants.

Each dialogue presented the relevant national context in terms of the current status of food systems and the impacts of these in terms of economy, environment and social and human health, policies and legislation in place that relate to these systems and impacts, and examples of past or current innovations of relevance, including government-led, NGO-led, and individual-led initiatives.

Discussions in each Dialogue were focussed around five key topics (see table below), with discussions under each topic guided by a number of key questions. These topics and questions were drafted by members of the organizing team and validated by the wider team, with particular input from national experts and relevant ministerial personnel. All topics were cross-checked against the Summit Action Tracks to ensure all Action Tracks were sufficiently incorporated into each Dialogue.

Areas of focus of the RMI National Food Systems Dialogues

RMI National Food Systems Dialogue	RMI National Green Food System Dialogue	RMI National Nutrition, Health and Food Safety Dialogue	RMI National Blue Food System Dialogue
July 22nd 2021	**August 24th 2021**	**August 25th 2021**	**August 27th 2021**
Focus on Action Track 1 and Action Track 2	1. The food we produce 2. The food we eat 3. The challenges of being on the front lines of climate change 4. Resilience and vulnerability 5. The impact(s) of COVID-19	1. The food we produce 2. The food we eat 3. Education/awareness 4. Resilience and vulnerability 5. The impact(s) of COVID-19	1. The blue food we produce 2. The blue food we eat 3. The challenges of being on the front lines of climate change 4. Resilience and vulnerability 5. The impact(s) of COVID-19

Dialogue discussions were structured in a way to ensure all stakeholders had the opportunity to have their voices heard. Discussions were initially held in small 'breakout' groups, helping to prevent individuals from dominating the discussion. Feedback was delivered by each group in the plenary setting, followed by a continuation of discussions as a whole group to allow greater sharing of perspectives and ideas.

Each Dialogue was structured to allow both in-room participation and online participation. This enabled the Dialogues to be accessible to as broad a group of stakeholders as possible, providing access both to stakeholders across the country (the RMI being an archipelagic nation of some 24 inhabited atolls) and to those for whom online access may not be possible.

Incorporating the UN Food System Summit principles into the RMI National Dialogues

The UN Food Systems Summit is guided by seven principles of engagement:

1. Act with urgency
2. Commit to the Summit
3. Be respectful
4. Recognise complexity
5. Embrace multi-stakeholder inclusivity
6. Complement the work of others
7. Build trust

Organization of each RMI National Dialogue incorporated and reinforced the Summit Principles in a number of ways. All organizing team members were made aware of the Principles through the sharing of relevant materials, and these were borne in mind throughout the organization and execution of the Dialogues. Specifically, the RMI is a country on the front lines of climate change like few others, and one that very clearly recognizes the need to act swiftly with regards to sustainable development. This awareness of the need for action in specific relation to the nation's food systems was integral to the organization of the National Food Systems Dialogues. The Dialogues were planned with an array of local stakeholders, ensuring that local culture and context was at the core of their planning, design and execution. The range of invitees reflects the recognized complexity of food systems in the RMI. Dialogue invitees were drawn from a cross-section of RMI society, including not only government officials from relevant agencies, but local farmers and fisherfolk, those involved in the buying and selling of foods for commercial and other purposes (e.g. institutional caterers), health professionals and NPO/NGO personnel. All dialogues were conducted in the context of current policies and legislation, and of previous and current relevant projects and initiatives. This was ensured through the delivery of relevant presentations preceding discussions at each Dialogue. Transparency has been central to the organization of the Dialogues, with the intent of the Dialogues and outputs from them clearly communicated to all invitees and attendees. Dialogue discussions were structured in such a way as to provide all attendees with a safe space to share their knowledge, perspectives and ideas.

The planning and organization of the Dialogues, both in terms of their content and execution, were conducted with an understanding and appreciation of the Summit Principles. Planning the Dialogues centered around the specific needs of the RMI with topics and meeting styles initially developed to be locally relevant and appropriate. Dialogue plans were subsequently cross-checked with the Summit Principles to ensure their incorporation. In this way, national priorities were placed at the center of Dialogue planning to ensure they were meaningful and valuable, while the Summit Principles provided an underlying guide to support the development of Dialogues that responded to them.

3. Synthesized Dialogue Findings

Findings are presented as a summary of each of the major discussion topics from the four Dialogues.

The food we produce

In terms of green foods in the RMI, agriculture is very limited with very few farmers across the country. Challenges to increasing agricultural food include poor soil quality, limited water supply and drought conditions, which favour traditional foods over non-traditional vegetables. Home gardens are considered a viable option for increasing the production of green foods, and some households to grow food. However, barriers to home gardening exist, including a lack of suitable growing space, unsuitable soil, salinity and a lack of proper tools, knowledge and skills. This is linked to cultural norms; home gardening has not been common practice among previous generations and so the necessary knowledge has not been culturally embedded. Box farming is being introduced to both rural and urban communities by the Canvasback Wellness Centre as a means of addressing the issues of space, soil quality and salinity.

An agriculture-focused Outer Island Extension Agent Program, started in 2018–2019 by the Ministry of Natural Resources and Commerce, encourages local mayors to nominate Agricultural Extension Agents for their communities who. These agents undertake a three-week training program, with the goal being to increase the outer island communities' knowledge and capacity in agriculture. The program aims to increase food production through establishing home gardens in schools and communities, and the propagation and growing of traditional food crops.

Innovative approaches to agriculture, such as hydroponics and vertical gardening, offer ways of efficiently producing nutrient dense foods but more innovation is needed. Importantly, continuity of projects utilizing innovative approaches is low and requires addressing.

Stakeholders including government agencies, farmers associations, educational establishments and international partners (specifically the Ministry of Natural Resources and Commerce in collaboration with the Taiwanese Technical Mission Farm) are working to achieve a zero-waste closed circle agricultural system that supports sustainable self-sufficiency, community involvement and empowerment through delivery of seedlings and livestock to communities, education and training on farming techniques and cooking with novel vegetables, and mobile markets to enable access to healthy, locally grown foods. These initiatives have demonstrated success, but challenges are faced in relation to the use of single-season hybrid seeds, a lack of relevant value chain data and the need to scale-up best-practice activities and ensure that they endure.

Furthering gender inclusivity in agriculture has also been a focus, with two groups of women from outer island communities having undertaken a two-weeks training course from the Ministry of Natural Resources and Commerce in collaboration with the Taiwan Technical Mission Farm. This training, for which the participants received certification, involved livestock husbandry and horticulture skills development.

Scale of production is a major issue. Though individuals may be able to be self-sufficient, food production through both farming and home gardening is not sufficient to provide consistent supplies to markets or to deliver food security. As a result of this, there is a reliance on imported foods.

Blue food in the RMI is dominated by the commercial fishing of Marshallese waters for export. Commercial fishing fleets are controlled by strict catch limits and extensively monitored (as part of the Pacific Islands Forum Fisheries Agency) for illegal, unreported and unregulated (IUU). IUU fishing poses a threat to national food security and can incur fines of up to $1 million, though enforcement requires significant capacity.

At the community-level, marine conservation practices supporting coastal fisheries have a long cultural history and various traditional and modern approaches are taken to support healthy ecosystems and stock. The Reimaanlok Framework is central to this, providing a pathway for community-led marine protected areas. Clam hatcheries have been established to support community-level income generation, and fish aggregating devices have been deployed to support safe off-shore fishing for artisanal fisherfolk, thus alleviating the fishing pressure on near-shore fisheries. A Protected Area Network Act has been established.

A program farming moi was begun in 2013, to provide fish for export. This support local employment and has been expanded to include rabbit fish and seaweed farming. The seaweed-farming project has been established to engage local women who have experienced income loss due to the COVID-19 pandemic, with a view to farming and processing seaweed for the domestic consumption and for export to Hawaii.

It is recognized that increasing local food production provides one route to improving safety, addressing those issues specific to food transportation.

The food we eat

Rice and canned goods are understood to be the most commonly eaten foods in the RMI, even in rural communities where it might be expected that local foods would predominate. Fish is abundant, with the most commonly eaten blue food in the RMI being tuna. However, as well as locally caught fish, canned imported fish is also commonly eaten, and even local fish are often eaten with imported foods rather than local produce.

Local foods are often seen as a luxury. That said, when local foods are available in stores, they sell out very quickly. The MISCO Market (part of the Marshall Islands Service Corporation) in Majuro sells locally caught fish, the majority of which are snapper and grouper. This includes the sale of live grouper to restaurants as well as the export of local reef fish to meet the demands of the Marshallese community in Hawaii. Snapper, grouper and moi used to be sold through the main supermarket in Majuro. The supermarket had hosted cooking demonstrations and provided recipe leaflets to support the consumption of local parrot fish. However, this program was discontinued with a change in personnel within the organization supporting it. There remains a desire from the retail sector to support local fisherfolk by providing a venue for sales.

That the vast majority of foods eaten in the RMI are imported reflects a number of factors including limits to available local foods, the wider choice that imported foods offer, and the convenience of preparing imported foods. This latter aspect is considered a result of a shift in societal roles. Increasingly women are a part of the RMI workforce and so have less time for food production and preparation.

There are, however, notable health problems associated the consumption of imported processed food. Childhood stunting is a major issue and is more prevalent in rural communities. Though delivery of vitamin A and folic acid supplements to rural communities is undertaken, there are limits to the coverage that can be achieved.

The RMI Public Schools System is working with the Majuro local government and Canvasback Wellness Center to support the provision of nutritious school meals. There is, however, a food safety issue to be addressed as the vendors are usually producing school meals in un-monitored domestic environments.

Additional food safety issues surround the importation of fresh produce and the transportation of fish caught within the RMI itself. The Marshall Islands Marine Resources Authority buys fish from rural fisherfolk to sell in urban areas to support local communities and ensure their safe transportation.

While there is a lack of accurate data regarding food waste, anecdotally it is considered an issue relating to imported foods, particularly on the larger atolls. A key issue being waste from packaging from imported foods. Blue food waste is extremely limited, with excess food often used in the preparation of take-out meals for sale, with waste being fed to pigs or used as fish food.

The challenges of being on the front lines of climate change

Drought has impacted the production of green food crops, specifically coconuts. Climate change is also impacting the seasonality of crops, delaying harvest and causing fruit to drop before ripening. An increase in the number of invasive species is of significant concern, as is damage cause by increasing frequency and severity of king tides. Climate change also threatens the security of freshwater sources owing to rising sea levels.

Currently employed strategies to adapt to climate change within the green foods sector include the use of mulching, to help retain moisture in the soil, and drip-bottle irrigation.

In terms of blue foods, surveys are being undertaken by the government to assess the impact of coral bleaching on fish production. These are currently baseline surveys, with a need for ongoing data collection to identify any specific impacts. Evidence from the scientific community suggests fish migratory patterns will change with oceanic thermal stress, and observations from local fisherfolk suggest that catches are changing in terms of species composition, size of catch and size of fish being caught. Data collection is needed to corroborate these observations. Furthermore, ongoing data collection, and sharing of existing international data with the RMI, with regard to the ecosystem health and the overall safety of some RMI waters as a result of the nuclear testing that took place in the 1940s and '50s.

Fish aggregating devices have been deployed to support coastal ecosystem protection, providing safe off-shore fishing areas for artisanal fisherfolk that reduce the pressures on coastal waters.

Education/awareness

Knowledge regarding healthy diets and the growing and cooking of healthy foods is limited within the general population, and lifelong education is recognized as being necessary in relation to all sectors of the RMI food system.

At the community level, community-driven awareness activities include a Facebook group for home gardeners in Majuro to share knowledge. Training and resources are provided to support the development of these gardens.

The RMI youth have been identified as potential change makers in terms of diets and nutrition, with school gardens being grown in a number of schools. In addition, the College of the Marshall Islands offers an agricultural curriculum. There is a recognized need for greater vocational training around agriculture.

Food security is part of the University of the South Pacific Graduate Diploma on Climate Change, and graduate scholarships in Global Environmental Studies at Sophia University, Japan are open to RMI applicants with a particular focus on those who are mid-career.

Resilience and vulnerability

Current levels of agriculture cannot provide nationally food security, and plans are in place to increase food production on outer islands to increase the self-sufficiency of rural communities. Work is also ongoing to in relation to the cultivation of drought and salt tolerant crop varieties. A UN IOM project to build resilience in outer atoll communities includes home gardening, the intent being to ensure access to sustainable local food supplies. Effective and accessible streams of credit are needed to support the initiation and expansion of agricultural activities by individuals.

A project to draw up standards for the Public School System agriculture curriculum was started to support food security. Standards focused on reducing poverty and the right to grow and access healthy foods were co-created by a group inclusive of women, youth, elders, and the disabled community, Further funding is needed to complete this work.

There has been no assessment of the impact of existing and prior activities to support food security to date, and an increase in political will is recognized as being needed to support food system resilience.

The innovation and knowledge of women in the RMI is of particular importance to building a resilient national food system.

Many of the traditional approaches to marine resource management have disappeared over time, even in rural communities. Traditional Knowledge in general is highly valued and recognized for its role in enhanced resilience, and there is a recognized need for a 'cultural revival' to prevent further loss of this knowledge. In terms of marine resources, the Reimaanlok Framework aims to address this and there are projects in place to re-establish the use of traditional fishing equipment.

Building resilience extends to establishing and protecting the RMI Exclusive Economic Zone in the face of rising sea levels. The intention being that the nation will always retain its waters despite the most extreme effects of climate change. Legal activities are also be undertaken to ensure this position can be asserted and defended.

The impact(s) of COVID-19

The main impact of COVID-19 on the blue food system has been in relation to the changing of transportation regulations and the impact this has had on the tuna catch. Transportation of food to and from outer islands has been maintained owing to the national purchase of new boats.

From a food retail perspective, the COVID-19 pandemic has resulted in some inconsistency in the supply of goods. This is owing to the lengthening of the quarantine period for imported foods from 21 to 30 days. This has also led to food safety issues as food is remaining in transit for longer. Furthermore, the cost of importing foods has risen owing to impacts on global transportation and the reductions in food-related workforces at point-of-origin. As a result, air shipments of goods to supplement the food supply have been commissioned, which are themselves costly.

Sales of certain food types have fallen. For example, during the pandemic, churches have reduced the number of events and activities they hold, and families have scaled back gatherings, both resulting in a fall in demand for locally produced livestock. The reduction in tourist visitors has also negatively impacted sales of local foods. In addition, crews of commercial fishing vessels have been unable to come ashore and buy foodstuffs.

Human capacity has also been impacted owing to the closing of the nation's borders; consultants have been unable to travel to the RMI and technical assistance has been lost. For example, health and nutrition experts and practitioners are usually international personnel, and so the inability to travel to RMI has negatively impacted this sector.

4. Synthesized Dialogue Outcomes

The four Dialogues shared many common discussion themes, and the outputs of the Dialogues were not restricted to the discussion topics, reflecting the broad range of needs identified by the varied stakeholders that were engaged in the Dialogues. The outputs of the Dialogues have, therefore, been grouped under the following themes corresponding to these commonalities:

- Blue foods in a large ocean state
- Green foods in a small island state
- Consumption patterns
- Education and awareness
- A Marshallese response to climate change
- Taking a whole-nation view
- Lessons from the COVID-19 pandemic

None of these themes stands alone, with various elements of each linking to the others. This demonstrates not just the complex nature of food systems in general, but the important role that each aspect plays in supporting and strengthening the food system of the RMI.

Blue foods in a large ocean state

Dialogue discussions focussed on blue foods identified the need for an expansion of ecologically sensitive production, and an increase in consumption of locally produced blue foods, particularly coastal blue foods.

Ongoing efforts are needed to support a revival of traditional customs in relation to fishing and to support fisheries sustainability. This centers around the Reimaanlok Framework and the establishment of an increased number of community-led marine protected areas. Within this Framework, the Marshall Islands Marine Resources Authority facilitates (rather than directs) the creation of a management plan to address the unique situations being faced by different communities. This helps promote ownership of the plans. The Reimaanlok process also supports the revival traditional fishing practices while bolstering them with management plans and legislation, and there is a clear need for these activities to be expanded. This links directly to the theme of ‘A Marshallese response to climate change’, as well as ‘Education and awareness’ as community and national-level resilience to climate change and climate-related events will come in part from the maintaining of Marshallese culture and practice, which itself needs to be revitalized across society.

There is much potential for the integration of sea vegetables into the food system of the Marshall Islands, with additional potential for finding non-food-based uses for them. This potential, and the additional opportunity for gender inclusivity in the RMI blue food system, has been demonstrated by the seaweed farming project that has been recently established that provides opportunities for women who have lost income due to the COVID-19 pandemic. These women, who previously had been engaged in craft ware production for the tourist market, now generate income farming and preparing seaweed for local and export markets. Developing more of this type of initiative, that generates food, generates income, drives gender-integration in food production, and does so in a way that is sustainable and supports healthy marine ecosystems is needed to diversify the blue food system within the RMI.

Ongoing support of the oceanic fisheries is also essential, as these remain a central pillar of the RMI economy and its future development, not least in the monitoring of international fishing fleets and enforcement of national regulations around illegal, unreported and unregulated fishing.

Linking directly to the ‘Consumption patterns’ theme, Dialogue discussions revealed that local retailers are keen to work more closely with government and local fishers to provide a marketplace for local blue foods. In addition the opportunity to revive educational programs in the retail setting to encourage increased consumption of blue foods, and in particularly local blue foods, was discussed. This could be achieved by way of collaborations between retailers and the Marshall Islands Marine Resources Authority, with suggested activities including cooking demonstrations and the provision of recipes leaflets to customers.

Green foods in a small island state

In response to the recognized lack of knowledge and experience related to growing vegetables, the Dialogue concluded that there was a need for the promotion of traditional food crops such as coconut, breadfruit and pandanus, as well as non-traditional but native foods, and non-traditional ways of using traditional foods, such as the production of flour from breadfruit. Where non-traditional crops are to be grown, moving away from the use of hybrid seeds, which must be re-purchased every season, is also necessary for this farming to be sustainable. There is also a need for implementing a variety of crops that provide production year-round. Though growing root crops is recommended, it is not easy owing to soil conditions and high temperatures. There is therefore a need to support farmers with organized education, technology, tools and markets as a route to boosting production

Capacity building in local communities is required to engage people in growing food through home gardening and encouraging sustainable practices through educational programs. This could be achieved through strategic collaboration for research/education training between public and private sectors, linking to both the theme of 'Education and awareness' and that of 'Taking a whole-nation view'.

Overcoming the current challenges of limited agriculture and limited local food supply will require an overall increase in production. Specific ideas to support this included strengthening farmers' and producers' associations, utilizing precipitation predictions to time the planting of short-term crops, ensuring adequate irrigation systems are available and maintained, implementing hydroponics, climate-smart agriculture techniques, a return to traditional ways of preserving food, and increasing composting activities (e.g. coconut husk cakes) to support soil improvement and growing success. There are opportunities for better linking of green and blue food system, for example through the use of fisheries waste as agricultural fertilizer.

The timely harvesting and processing of traditional foods, such as breadfruit and pandanus was considered, with recognition that farmers may have neither the capacity nor equipment to process these foods for sale. This can result in a proportion of harvests going to waste. During the Dialogue a cooperative approach was discussed; one that has been shown to be successful in expanding the market for breadfruit in Hawaii and that may be viable in the RMI. In this system, farmers joining the cooperative are guaranteed a fair price for their crop, with any processing and marketing of goods handled by the cooperative, thus encourage the growth of such crops, reducing crop wastage and providing an opportunity for the development of value-added products.

In order to increase the levels of local food consumption the Dialogue discussions suggested that building capacity be essential to support an expansion of farming and home gardens, linking directly to the theme of 'Taking a whole-nation view'. In particular the need for recording and maintaining traditional food preservation skills from community elders was recommended. Furthermore, re-establishing traditional food festivals will support this knowledge transmission.

Consumption patterns

The majority of food consumed in the RMI is imported, and several factors that influence food choices at the household level. Nowadays, many women have regular jobs that reduce the available time for food preparation and cooking, resulting in a preference for convenience food. Food preferences have also been highly influenced by western culture. "Transforming palettes" across society, i.e. assimilating novel or less commonly eaten foods into the diet, is therefore necessary as many people will not have tasted (or know how to prepare) non-native produce and uncommon vegetables. In order to better integrate healthy local foods into people's diets there is a need to become familiar with their flavors and how to cook them. It is essential that addressing this includes children, as they can be change makers, both influencing their families but also altering societal behaviors as they grow up. Initiatives to introduce vegetables into school meals have shown that children will often push the foods that they are not used to the sides of their plate. Therefore, coming up with recipes that incorporate vegetables in a way that they can't be separated is necessary.

The importance of commercializing local production through markets, such as farmers markets, where the community can access local healthy foods at an affordable price, was highlighted during the Dialogues. The private sector is committed to promoting agribusiness, but there is also a need to establish digital spaces to improve market access.

While there is very little blue food waste in the RMI, it is recognized that better sorting of waste is required, and that food scraps and waste should be used to make compost. The collection and composting of food scraps is being considered by the Majuro Atoll Waste Company. The Dialogue discussions also raised the possibility of encouraging schools to utilize foods that are close to their expiry in the production of school meals, as a route to helping reduce food waste. Developing campaigns to demonstrate how plant leaves can be incorporated into meals is a way to help reduce food waste and incorporate the nutritious and edible parts of plants that may otherwise be ignored into people's diets.

There is a need to work with local fisherfolk to ensure the safe handling of foods in accordance with regulatory standards in order to improve the safety of local products. The lack of a certified laboratory in the RMI for the testing and labelling of foods for export and domestic consumption also presents a challenge with regard to food safety.

A number of additional challenges were identified during the Dialogues, many of which link across themes:

- There is a need for focus on programs for schools and young people as many children attending school are not sufficiently fed, and lunch programs currently do not provide adequate nutrition
- School meal vendors are often families working in unregulated domestic kitchens, presenting a potential food safety issue that requires addressing
- Ciguatera can be a problem. Ongoing, regular monitoring of fish is not currently in place, and this is needed to deal with this issue
- Local and healthy foods are usually the more expensive, with many people unable to afford them
- Know-how around food preparation and cooking is an issue raised by the participants that limits local food production and the inclusion of healthy foods in everyday diets.

Education and awareness

While educational opportunities exist in relation to food production, these tend to be academic-focussed, and there is a need for an increase in the vocational training opportunities, particularly in the agriculture sector.

There is a need to improve awareness of the importance of including healthy foods in everyday meals. Awareness and education must be inclusive of all sectors of society, especially women and youth, as they are recognized as being potential change makers within Marshallese society. Potential routes to improving awareness amongst different sectors of society were identified during the Dialogues. These included:

- The development of a food pyramid in Marshallese to be distributed to households was identified as a way of better communicating balanced, nutritious diets
- A program of house-to-house visits to enable direct communication with new mothers with regard to infant nutrition
- Encouraging churches to incorporate healthy local foods into their regular group activities and events opens the opportunity not only to provide a healthy meal to people but also to raise awareness about the importance of healthy, nutritious diets
- Reaching RMI's youth with educational messages around nutrition and food safety during the Summer Youth Convention held annually on Majuro. This would also provide an opportunity to collaborate directly with church and your groups.

Education and awareness around food, nutrition, health and food safety requires a cross-sectoral approach, and so links to the theme of 'Taking a whole-nation view'. It was specifically identified within the Dialogues that local governments and the private sector should be encouraged to play a larger role in raising awareness around nutrition and food safety amongst their communities.

The role of school gardens to increase children's interest in growing and valuing healthy and locally grown foods was raised. The Canvasback Wellness Center, in partnership with the government and local stakeholders such as farmers cooperatives, is moving forward with different programs at the school and family level to implement house/school gardens and healthier diets, including supporting relevant legislation.

Specific challenges related to education and awareness included:

- Maintaining interest and awareness around activities driven by government ministries is an ongoing challenge. Programs and interventions require regular revitalization and improved communications
- The scope to improve the level of nutrition expertise integrated into the initiatives that are carried out by government and the Canvasback Wellness Center. This links to the theme of 'Taking a whole-nation view' and the need for multi-sectoral collaborations.

Resources to support awareness-raising interventions are limited. Discussions during the Dialogue suggested that a portion of funds received via taxation on tobacco could be directed to the Ministry of Health and Human Services to support new and ongoing interventions.

A Marshallese response to climate change

Importantly, the Dialogues identified climate change as being a cross-sectoral issue. Any climate-related policies, strategies etc., even if focussed on food systems, should be cross-sectoral in nature and should extend beyond RMI borders to engage the wider region. A broad long-term climate strategy is required, linking directly to the theme of 'Taking a whole-nation view'.

Linking to the theme of 'Taking a whole-nation view', there is a need for continued data collection, particularly in relation to the blue food system. This will allow assessment of the impact of climate change on the nations fisheries, both coastal and oceanic, and enable the development of suitable plans to mitigate any revenue loss from this sector due to climate change.

The vulnerabilities to agriculture are largely physical in the RMI; salt-spray, drought conditions and long-term sea-level rise. There is a need to establish seedbanks to ensure that local food crops aren't entirely lost by disaster conditions such as seawater inundation and can be replanted. There is a need to increase the training and outreach to farmers that currently occurs, as well as generate interest in agriculture activities and build expertise, linking to the theme of 'Education and awareness.

A number of suggestions were made during the Dialogue discussions that were considered to be useful agriculture-specific adaptation strategies. These included:

- Coastal replanting to protect the land and soil
- Increasing the use of hydroponic systems, including floating hydroponic rafts, and aquaponics systems
- The digitization of agriculture to allow efficient, targeted irrigation and fertilizer application
- The provision of ecologically friendly farming tools and supporting increased composting were also highlighted
- Promoting the use of mulching as a soil improver and to retain moisture
- Promoting the use of drip-bottle irrigation to maximize limited water resources
- Cultivating easy-to-grow and hardy/salt tolerant vegetables, including the cultivation of species and varieties commonly grown by some of RMI's neighbors such as the Federated States of Micronesia
- Implement financial mechanisms to support local farmers.

It was further suggested that there remains a need for developing a national food security strategy that supports the maximal levels of food independence for the RMI and, crucially, ensuring that this strategy be followed through on. This, therefore, links to the themes of 'Blue foods in a large ocean state' and 'Green foods in a small island state.'

Linking to the theme of 'Education and awareness', there is a need to establish a nationally relevant understanding of what climate change means to the Marshall Islands and Marshallese society. This requires the communication of the need to respond to a global problem the origins of which are not local. This is all important in the context of developing necessary environmental management plans that address the environmental degradation that communities are seeing. The future of the RMI is contingent on what happens 'on the ground' and internationally to prevent being "*drowned by the sea and starved by the barren land*".

Resilience to climate change and natural disasters requires a more integrated food system, requiring input from a broader base of stakeholders. There is a need for a multi-stakeholder, holistic ridge-to-reef approach to improve the RMI food system. Better integration of green food systems can be brought about with the establishment of night markets and farmers markets, making local foods accessible to a wider range of people.

Loan programs and small grants for NGOs were identified as a way to help prepare for potential loss of food systems revenue as a result of climate change, and adequate credit facilities, such as small enterprise loans, should be available to individuals would help provide the enabling conditions for the establishment of small-scale food production.

Women are central to decision-making about food, children's nutrition etc. and are leaders and innovators in relation to food systems and producing local goods. Therefore, any conversations about agricultural development and innovation must be gender inclusive. Any approaches to agricultural development should also be inclusive of RMI youth.

Development of "Early Warning Early Action" plans will enable the provision of timely information to people to allow them to respond and reduce the impact of specific hazards, such as natural disasters. Lastly, it was recognized that to implement strategies there is also a need for political will to support local initiatives.

Taking a whole-nation view

The Dialogue painted a very clear picture of the need for nationwide collaboration between a diversity of stakeholders to enable effective transformation of the RMI food system. Inter-ministerial collaborations, as well as collaborations between government, NGOs and the private sector, will be invaluable in effecting the change that is needed. It is recognized that government must be central to this, and there is a need for government-driven activities, programs and awareness raising to establish an inclusive, healthy food system in the RMI that integrates local foods into markets.

Data is an essential component of this. Within the green foods system there is a need for an agricultural census. Furthermore, there is a recognized lack of data regarding the impact of existing initiatives run by organizations such as the Taiwan Technical Mission Farm and the Canvasback Wellness Center on the health, nutrition and household welfare. This requires addressing, and this data gathering should ensure a particular focus on women's perspectives, being pivotal to family food choices and infant nutrition. It was further suggested that a national 'stock-take' be undertaken in relation to food production and security, from both green food system and blue food system perspectives.

Building capacity is also required, and this is itself an issue of capacity diversity. Capacity is needed to enable the RMI to fully participate in the actions necessary to mitigate and adapt to climate change, and also to be able to nationally generate the data necessary to monitor a changing environment and assess the impacts of specific interventions. There is also a need to build capacity within the food production sector, and particularly agriculture. Young people do not see agriculture as a viable future career option, so there is a need to change this mindset by including agricultural science into the education system. It is recognized that to deliver sufficient agricultural education to a high enough level that will benefit the country as a whole, the offering of specific scholarships will be needed to attract students into the field. Lastly, there is a recognized disparity between the goals and targets within relevant government policies and the on-the-ground activities to achieve those goals. There is, therefore, a need to address the challenge of limited policy implementation, which is itself an issue of capacity.

Lessons from the COVID-19 pandemic

While the COVID-19 pandemic has not affected the RMI in the same ways that it has many other countries, its impact has been felt owing to the reductions in transportation into and around the country and the light it has shone on the reliance on imported food goods. The government of the RMI has recognized the potential impacts of this pandemic, and similar future global crises, particularly on those communities that are less well connected but that also normally rely on imported foods. To ensure that these communities are sufficiently prepared for further or future negative impacts on this transportation of foodstuffs, the government has approved the distribution of farming tools to the outer islands. This will help support local food production and so increase community resilience against the ongoing crisis or similar future crises. The impact that COVID-19 has had on tourism is also reflected in the commercialization of foodstuffs as tourists were a major market for local produce.

Home gardening has been identified as an opportunity to increase independence and resilience against shocks such as that presented by the COVID-19 pandemic.

The food safety concerns that have arisen with the increased transportation times that the COVID-19 pandemic have resulted in has led to the need for requests for quarantine protocols to be re-assessed. The impacts on food supply have also led to the recognition that more needs to be done to commercialize locally produced foods and food products.

5. Priority Themes for the RMI Food System Pathway

Based upon the findings and outputs of the RMI UN Food Systems Summit National Dialogues, a number of key themes have been identified. These reflect the major issues being faced and the opportunities to address these. The themes are as follows:

- Diverse and sustainable blue food production and consumption
    - The Dialogues emphasized the importance, value and potential of the blue food sector for the provision of food and nutrition security in a way that supports ecosystem health and resilience
- Sustainable green food production and consumption
    - The Dialogues demonstrated the importance and potential of a diverse and sustainable green food sector that contributes to individual and community healthy, well-being and prosperity
- Lifelong nutrition and health education and awareness raising
    - Nutrition and health education and awareness is a society-wide issue that touches all ages, genders and social groups and is central to shifting perspectives and behaviors related to food consumption patterns
- Food safety in a complex system
    - The RMI food system requires the implementation and enforcement of adequate measures to ensure the safety of foods within that system and preserve the health of individuals and communities
- Inter-ministerial/cross-sectoral collaboration
    - Transformation of the RMI national food system will be complex, requiring the will and commitment of multiple and diverse stakeholders across all levels of government and society to ensure success.

These themes provide a framework within which to consider how the RMI food system may be transformed and act as a starting point for the development of a transformative pathway to a sustainable, resilient and equitable food system that contributes to the realization of the vision of the 2030 Agenda for Sustainable Development. This pathway will support the RMI National Strategic Plan, the Agricultural Sector Plan and the Food Security Policy, and in so doing will provide a clear direction for the creation of a food system that addresses current challenges and realizes the abundant opportunities for change within the RMI.

6. Summary

The RMI UN Food System Summit National Dialogues are the culmination of a process of organization and development that has brought together a multitude of stakeholders to begin to address some of the most pressing needs and greatest opportunities the country faces in terms of its food system. Through cross-sectoral discussions and information sharing, these dialogues have explored the priority areas of blue foods, green foods, and nutrition, health and food safety. The findings and outputs of the National Dialogues demonstrate the depth of knowledge and understanding not only of the current status of the RMI food system, but also of the future challenges it faces from climate change and international crises like that seen through the COVID-19 pandemic. Furthermore, the Dialogues have identified various ways forward to begin addressing these challenges and maximizing the opportunities for food system transformation. In this way these Dialogues support the fundamental purpose of the UN Food Systems Summit: to develop a food system that contributes to the realization of the vision of the 2030 Agenda for Sustainable Development. Of equal importance, it is hoped that these Dialogues and the activities they catalyze will support progress towards the achievement of many of the RMI's strategic development plans and goals.