

Pathways to Sustainable Food Systems in Palau

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Introduction

To improve global and local Food Security, the United Nations held a Food Systems Summit on September 23rd, 2021 to discuss priorities and pathways for achieving Sustainable Food Systems and thus meet the 2030 Sustainable Development Goals (SDGs). Palau held a three-part Food Systems Summit Dialogue prior to the UN Summit to build on its existing body of work on Blue Foods and thus develop pathways and game-changing solutions for achieving greater Food Security. This document includes a Vision for transforming Palau's Food Systems to be more sustainable by 2030, and includes pathways, solutions, and actions necessary to make that transition.

Palau's "Sustainable Food Systems" Vision

By 2030, Palau's Blue and Green Food Systems¹ are coordinated holistically across sectors, are modernized and efficient, support sustainable livelihoods, drive nutritional hunger to zero, and are environmentally and cultural sustainable and resilient.

(See Annex 1 for Targets in line with existing national commitments).

Purposes of the Current Food System

Food Systems in Palau serve multiple purposes:

- Providing food (energy and nutrition) for the resident population of at least 18,000 people, which includes ~14,000 indigenous Palauans and a ~4,000 foreign worker population, with ~75% of the entire population located in urban areas. Locally-produced foods provide for an estimated 15-20% of the diet. The majority of food consumed is imported.
- Providing food and experiences for a tourist population, which can range anywhere from 90,000 to 140,000 people per year. The number of tourists on island at any one time can range from 1,000 to 3,000 people (6-17% of the total number of people on island).
- The exchange and sourcing of foods, particularly locally-produced foods such as fish and taro, play an important role in cultural identity and traditional practices.
- The Food System provides for livelihoods and jobs, from producers and processors to retailers and restaurants. However, the Food System is constantly shifting and existing participant profiles provide inadequate information about the exact contribution of the Food Systems to economic livelihoods, making interventions and assessment difficult.
- Locally-grown foods and diverse processed foods could be an important factor of resilience in the face of global stresses.

Current Situation and Challenges to Sustainable Food Systems

Complexity of the System

Palau's Food Systems are very complex and encompass economic, social, environmental, and cultural sectors across multiple processes from production to consumption, as illustrated by the Agricultural Food System Conceptual Model (*See Figures 1 and 2*). Figure 1 shows that economic and social (*yellow*

¹ Blue Foods: pelagic fish, aquacultured finfish and invertebrates raised for food, and nearshore fish and invertebrates.

Green Foods: vegetables, fruit trees, root crops, and livestock

and pink in the figure) considerations play a significant role in Food Security during every process. Figure 2 provides more evidence of the complexity of the Food System, and the varying degrees to which sectors influence Food Security. However, much of the responsibility of Palau's Food Systems has been placed on the environmental sector, which has a relatively small role in the entire system. Cultural considerations are present throughout the system. This model shows that Palau's current approach, of relying on the environmental sector for Food Security, is inadequate. Further, fisheries, aquaculture, crops, livestock, production, consumption, and distribution have each been considered within discrete silos, and a systems perspective has not been applied to Palau's Food Systems in its modern era.

Figure 1: Example of the multiple sector considerations of Palau's Food Systems. Size of circles is indicative of the level of influence on Palau's overall Food Systems.

This illustrates the Agricultural Food System, which was mapped during the 2021 Dialogues, but is indicative of all Blue and Green Food Systems. [This figure is hyperlinked to an interactive presentation.](#) Clicking on it will take you to an external website.

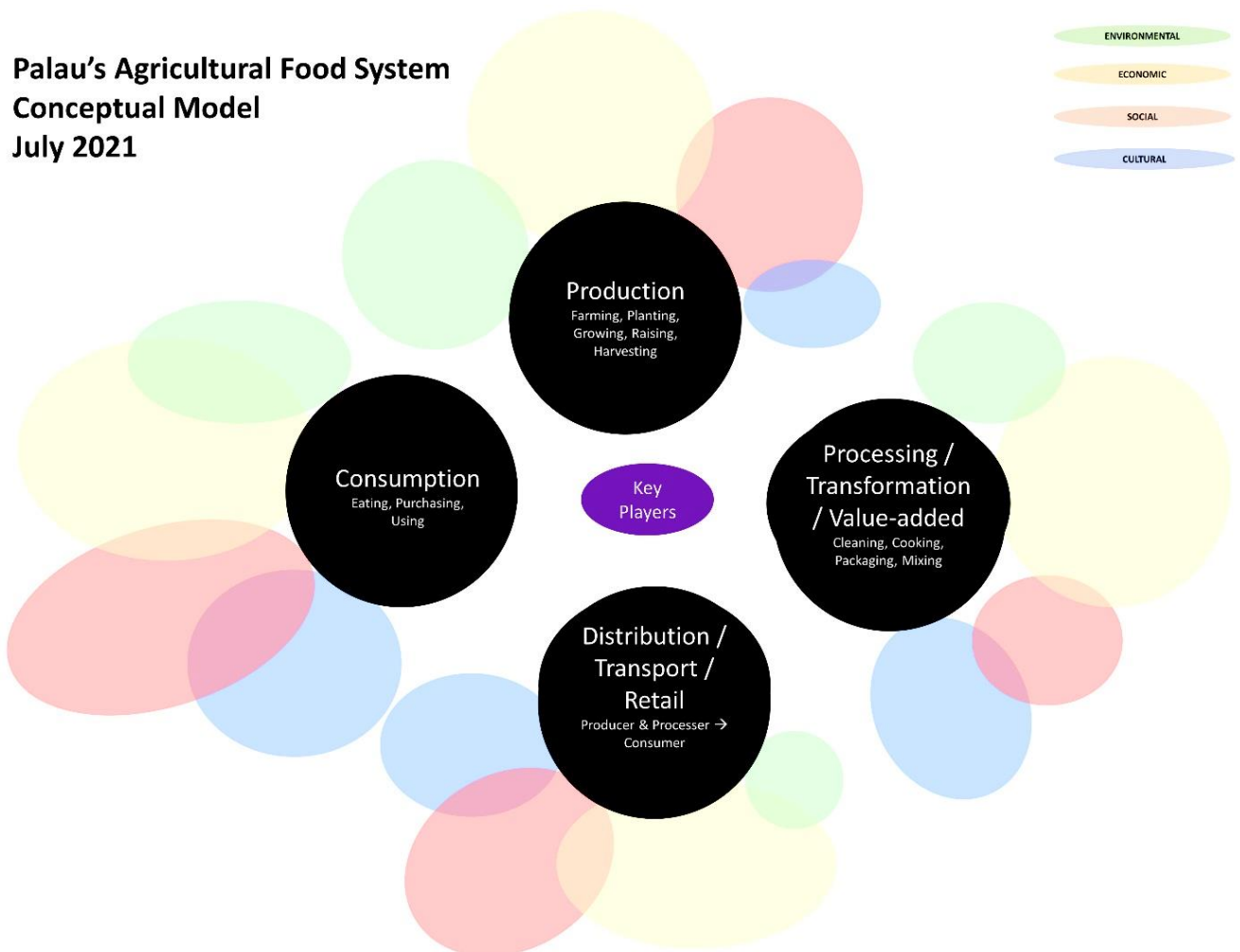
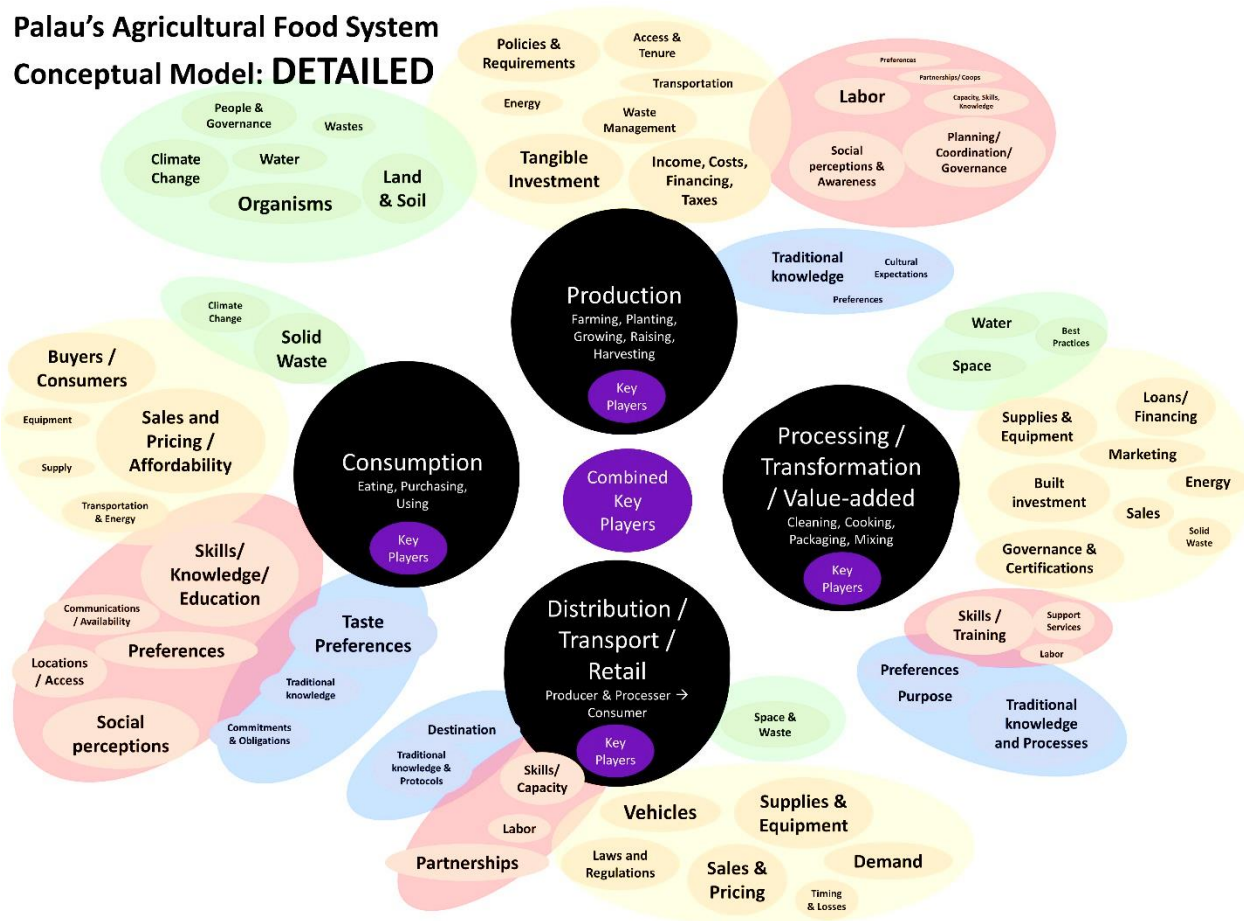


Figure 2: Example of the complexity of Palau's Food Systems between and within sectors. Size of circles is indicative of the level of influence on Palau's overall Food Systems.

This illustrates the Agricultural Food System, which was mapped during the 2021 Dialogues, but is indicative of all Blue and Green Food Systems. This figure is hyperlinked to an interactive presentation. Clicking on it will take you to an external website.

Palau's Agricultural Food System Conceptual Model: DETAILED



Because of the complexity of the Food System, challenges to Food Security arise in every sector and thus are relevant to every Ministry in Palau's government (see Figure 3).

Figure 3: Example challenges to the Palau Food System with relevance to every Government Ministry



Low Production and Consumption

Low production of pelagic fishery, aquaculture, agricultural, and livestock products is a driver of food insecurity in Palau. This is compounded by preferences for unhealthy foods and issues of access and affordability. Production is by mostly smallholder families who fish and farm part-time, and technical and partner support for scaling up, commercializing production, and connecting to markets could be improved. Education and policies to drive healthier consumption have gaps, and existing policies need better promotion, compliance, and investment. At the same time, there is significant food waste, including at schools, restaurants, and cultural events.

Vulnerable Livelihoods

Palauan producers face high levels of economic risk and growing environmental uncertainty, and as such Palau's Food Systems do not provide for stable jobs and income for many Palauans. Many processes within the Food System are dominated by foreigners or foreign investment: Farming and pelagic fishery production by foreign labor, high value processing (especially at restaurants and for tourists) is financed with foreign investment, and distribution and access points (like stores) has high levels of foreign ownership. This reliance on external labor and investment introduces an additional vulnerability.

Additional challenges and vulnerabilities have been documented extensively elsewhere, fed into Palau's Food Systems Dialogues, and influence the Improved Enabling Conditions and Pathways presented here.

STEPS TO ACHIEVING FOOD SECURITY

Step 1: Systems Perspective as a Key Enabling Condition

Palau must apply a Systems Perspective to its Food Systems so that planning, policies, and practices are aligned across sectors and make sense from production all the way through consumption. Currently, Food Systems are managed in discrete silos by individual Ministries. Shifting to a Systems Perspective will require integrated planning and mainstreaming across the Blue and Green Food Systems and a shift in thinking towards one aligned system rather than discrete silos and sectors. **Applying a Systems Perspective is Step 1: a key enabling condition that must be developed and implemented for Palau's pathways and actions to lead to true transformational change.**

Palau has successful models of cross-sector coordination. For instance, national emergencies are managed across sectors through a National Emergency Committee with a dedicated task master, varied sector expertise, and a clear chain of command. Palau's National Health System is jointly managed by the Ministry of Health and Human Services, Ministry of Finance, Ministry of Public Infrastructure and Industries, and the private sector through a whole-of-government coordinated fashion. Palau's Protected Areas Network similarly implements a whole-of-society response to managing the environment, with the active involvement of the Ministry of Justice, Ministry of Agriculture, Fisheries, and Environment, Ministry of Finance, State Governments, and NGOs. Palau has the experience and knowledge to achieve Food Security through a coordinated whole-of-government response with links to civil society and the private sector.

Implementing a "Whole-of-Government" response (*See Figure 4 and Table 1*) will enable the Palau government to apply a Systems Perspective, better integrate with the private sector and civil sector, and improve the conditions necessary to achieve Food Security.

Table 1. Game Changing Solutions and Example Actions - Systems Perspective

Game Changing Solution	Example Actions
Scaling up existing models for cross-sector and cross-Ministry coordination	Establish a "Whole-of-Government" or Whole-of-Society coordination mechanism ² and task an individual to be a "Sustainable Food Systems Lead/Champion" to coordinate the nation's response
Development of comprehensive profiles of production, distribution, and consumption	Cross-sector data collection and sharing in line with SDG priorities (e.g. childhood nutritional status, water status, etc.), and determination of baselines and targets.
Mainstreaming of cross-sector Food Security (including economic, social, environmental, and cultural perspectives) into agency and private sector plans and practices	Updating of Ministry and Agency plans, policies, and practices and conduct integrated cross-sector Master Planning that combines Blue and Green Food Systems

² This may include modifying existing cross-sector processes and mandates, particularly through the National Environmental Protection Council (NEPC), an existing cross-Ministry body. Additional actions may include updating of Ministry mandates to include Food Security, or issuance of a high level directive to mainstream Food Systems into each Ministry.

Figure 4. A “Whole of Government Response” to illustrate a Government- and Society-wide Systems Perspective on Palau’s Food Systems

“Whole-of-Government” Response: Ministry Roles in the Food System



Each Ministry has a role to play in transforming Food Systems and thus achieving Food Security, and by doing so, each Ministry will benefit. Table 2 provides examples of how this can be achieved.

Table 2. Roles and benefits for every Ministry from applying a Systems Perspective to Food Systems

Ministry	Food System Transformation Needed	Benefits of Sustainable Food Systems
Ministry of State	Create new partnerships with State Governments to access land and water for production; and develop new trading partner, technical, and financial relationships with international partners	Stronger relationships with domestic and international partners, increasing resilience
Ministry of Education	Mainstreaming nutrition information into curriculum, and “Lead by Example” – Increase healthy food offered	Students who are better prepared for healthy lifestyles when they are adults, and who have fewer sick day and more attention
Ministry of Agriculture, Fisheries, and Environment	Increase sustainable production using best practices	More locally-produced and healthy food available, while protecting Palau’s environment
Ministry of Infrastructure and Industry	Implement waste management and composting, and develop new facilities for food system access	Extend the longevity of the National Landfill and increase accessibility and affordability for all of Palau to meet basic needs
Ministry of Finance	Implement policies to prioritize local and healthy buys, house and share data, and simplify financial requirements	More efficient and better retention of Palau’s financial resources in country; more access to financial mechanisms by vulnerable peoples
Ministry of Health and Human Services	Increase education, outreach, and mandates on nutrition, and “Lead by Example” – Increase healthy food offered	A healthier population
Ministry of Justice	Align enforcement practices with updated food system laws and needs	A safer and more secure Palau, with benefits for indigenous people
Ministry of Human Resources, Culture, Tourism, and Development	Training and small business development for Palauans	Strengthened cultural practices and increased stable employment for Palauans

Production and Optimal Diet as an Underlying Assumption for all Pathways

Palau has committed to the Sustainable Development Goals and is working to achieve ambitious internal goals by 2030. Since independence in 1994, Palau has gone from a low-income to a higher-income country, and provides basic services and a basic, dignified quality of life for its people. As described in Palau’s Voluntary National Report (VNR) on the Sustainable Development Goals (SDGs), Palau is now focused on closing gaps, improving quality, and building resilience. As a nation we aspire to eradicate poverty³ by 2030. We are focused now on ensuring that our people have an optimum diet. **The 2021 Food Systems Dialogues explored many options and identified that Increasing Production is a top priority for improving Food Security and achieving an optimum diet. Increasing production thus underlies all pathways.** Opportunities to scale up production exist in all sectors, with the exception of nearshore fisheries.

³ As measured by people living below the poverty line.


Step 2: Pathways and Game Changing Solutions to achieve Food Security





Through the 2021 Dialogues and an examination of the vast preceding body of work on foods in Palau, in addition to the application of a Systems Perspective, four (4) Pathways for transforming the Food System, meeting its Food Systems Vision, and thereby achieving its targets for meeting the 2030 Sustainable Development Goals (SDGs) were developed (See Table 3):

- 1. Blue Economy Powering Green Growth:** Growing all sectors of Palau's Ocean-based economy and food supply, thus leading to improved livelihoods and improved financial access to multiple types of healthy foods.
 - *Increasing innovative and sustainable use and efficiency of the Domestic Fishing Zone for jobs and food,*
 - *Actively driving new demand for offshore fish, including through tourism,*
 - *Innovative uses of near-shore environments (especially aquaculture),*
 - *Which then drive expansion of the land-based sectors such as agriculture, tourism, and processing*
- 2. Partnerships for Production:** Commercializing agriculture, offshore fishery, and aquaculture production, with increased supply then improving accessibility and affordability of healthy foods.
 - *Joint pursuit and formalization of new Public-Private, International (Multilateral and Bilateral), political, technical, financial, environmental, sociocultural, and government partnerships*
 - *Resilient market links while staying*
 - *Nature-positive and carbon neutral.*
- 3. Transforming Consumption and Modernizing Markets:** Driving demand and transforming accessibility, affordability, and perspectives so that healthy foods are consumed at higher rates.
 - *Changing education and outreach plus government policies and practices to support healthy consumption*
 - *Using technologies to access and create markets,*
 - *Driving demand through diversification, and*
 - *Modernizing data to stabilize supply.*
- 4. Connecting to Culture:** Using traditional and cultural practices to improve on existing production and supply.
 - *Strategically planning for labor needs (including foreign labor)*
 - *Blending traditional and cultural practices with good business practices*
 - *Using cultural networks to strengthen coops, and*
 - *Building relationships on the supply and value chains*

See Annex 2 for details on each Pathway and Game Changing Solutions. See Annex 3 for Ministry-specific actions towards implementing Pathways.

Table 3. Transforming Palau's Food Systems: Needed Enabling Conditions and Pathways


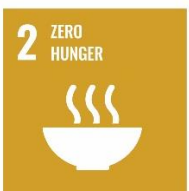




Key Enabling Condition to be Improved		
Systems Perspective 	Description: Palau will apply a Systems Perspective to Food Systems so that planning, policies, and practices are aligned across sectors and make sense from production all the way through consumption.	Actions: <ul style="list-style-type: none"> • “Whole-of-Government” coordination mechanism • Develop cross-sector profiles with data sharing and aligned data collection • Cross-sector Food Systems Planning, and updating of individual agency plans, policies, and practices

Pathways to achieve Food Security				
				
Pathway	Blue Economy Powering Green Growth	Partnerships for Production	Transforming Consumption and Modernizing Markets	Connecting with Culture
Description	Palau will improve use of its vast ocean to fuel sustainable economic growth and diverse job creation. Expanding and stabilizing this Blue Economy will organically drive growth of a sustainable Green Economy on land.	In an integrated fashion, Palau will pursue political, technical, financial, environmental, and sociocultural partnerships to increase offshore fishery, aquaculture, and agriculture production	Palau will align policies and outreach, improve access, diversify added value opportunities, and modernize local and global market connections to drive demand and shift consumption to healthy, local foods.	Palau will sustainably increase production to be net positive environmentally and culturally, in line with traditions of cooperation and sharing, and utilizing traditional knowledge of farming and fishing.
Game Changing Solutions	Increasing diverse, culturally appropriate, economically viable, and environmentally friendly jobs and foods sourced from or centered on the ocean, and using these to drive similar growth on land.	Creating innovative Private-Public Partnerships to drive innovation, efficiency, and commercialization of production and to establish more resilient market links while staying nature-positive and carbon neutral.	Aligning government policies and practices, using technologies to connect smallholder farmers and artisanal fishers to new domestic and global markets, and actively creating trends to drive healthy consumption.	Using cultural networks and traditional knowledge to strengthen coops while blending cultural practices with good business practices, including building relationships on the supply and value chains
Cross-Ministry Actions: (See Annex 3 for Ministry-specific actions)	Mainstreaming of Sustainable Blue Development and Sustainable Food Systems into all policies and practices	Joint pursuit of private-public, bilateral, and innovative partnerships to increase production while staying nature-positive and carbon neutral	Reforming government policies, practices, finances, and data to drive demand, supply, and consumption of healthy, local food	Partnering with communities to ensure that increased production is in line with Palauan cultural values

Expectations of the Palau Food Systems by 2030


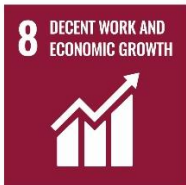




Transforming Palau's Food Systems will move Palau towards achievement of the 17 Sustainable Development Goals. By 2030, Palau's Food Systems should have fully achieved of SDG 2: End hunger, access to safe and nutritious food by all, and end all forms of malnutrition, contributed towards achievement of SDG 3: Improved health through a one-third reduced premature mortality from NCDs, and contributed towards SDG 8: Economic growth and decent work from diversification and added-value sectors and increased productive activities. Transformation of Palau's Food Systems will move Palau towards all 17 SDGs (*Table 4*):

Table 4. How Transforming Food Systems will contribute to achievement of Palau's SDG Targets

SDG						
Palau Target	Target 1.2. Reduce poverty by at least half	Target 2.1. End hunger; access to safe, nutritious, sufficient food; Target 2.2. End all malnutrition Target 2.4 Capacity for climate change adaptation	Target 3.4. Reduce by one third premature mortality from NCDs	Target 4.4. Increase youth and adults who have skills (including technical & vocational)	Target 5.4. Recognize and value unpaid domestic work; shared responsibility Target 5.b Information and technology to empower women	Target 6.4 Water use efficiency, sustainable freshwater withdrawals and supply Target 6.5. Integrated water resources management at all levels
Enabling Conditions and Pathways	<i>Blue Economy Powering Green Growth</i>	<i>Partnerships for Production</i>	<i>Transforming Consumption and Modernizing Markets</i>	<i>Blue Economy Powering Green Growth</i>	<i>Connecting to Culture</i>	<i>Systems Perspective</i>
Outcomes	Improved jobs and incomes in fisheries, agriculture, and tourism	Increased amount, affordability, access, and stability of locally-produced healthy foods	Preferences towards healthy foods and increasing healthier consumption	Higher demand for sustainable products stimulates job diversification and training	Increasing respect and desirability for food production activities	Food System development that is inclusive of transboundary and cross-sector impacts







(table continues next page)

Table 4 (continued)

SDG	 7 AFFORDABLE AND CLEAN ENERGY	 8 DECENT WORK AND ECONOMIC GROWTH	 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	 10 REDUCED INEQUALITIES	 11 SUSTAINABLE CITIES AND COMMUNITIES	 12 RESPONSIBLE CONSUMPTION AND PRODUCTION
Palau Target	Target 7.2. Increase share of renewable energy	Target 8.2. Economic productivity from diversification & high-value added; Target 8.3. Productive activities, job creation, entrepreneurs; Target 8.4 Resource efficiency Target 8.6. Reduce unemployed youth Target 8.9. Sustainable tourism w/ jobs and local culture, products.	Target 9.2. Inclusive and sustainable industrialization Target 9.3. Upgrade infrastructure and industries, w/ resource-use efficiency, clean and eco-sound; Target 9.b Domestic technology development; diversification and value addition to commodities	Target 10.1. Income growth of the bottom 40% of the population Target 10.2. ... Social, economic and political inclusion of all	Target 11.4. Safeguard cultural and natural heritage Target 11.6 Lower environmental impact of cities, including waste management Target 11.7. Universal access to safe, inclusive and accessible, green and public spaces	Target 12.3. Reduce food losses along production and supply chains Target 12.4. Eco- sound chemicals and waste management Target 12.5. Reduce waste generation Target 12.7. Sustainable public procurement practices Target 12.8. Information and awareness for sustainable development
Enabling Conditions and Pathways	<i>Partnerships for Production</i>	<i>Blue Economy Powering Green Growth; Partnerships for Production, & Transforming Consumption and Modernizing Markets</i>	<i>Partnerships for Production; & Transforming Consumption and Modernizing Markets</i>	<i>Blue Economy Powering Green Growth; & Systems Perspective</i>	<i>Connecting to Culture; & Partnerships for Production</i>	<i>Partnerships for Production & Connecting to Culture</i>
Outcomes	Increased use of solar in food production sectors	Expanded added- value sector, expanded fishery and agriculture production jobs, small business support, and improved business practices	Increased sustainable commercial production with decentralized support services and infrastructure, and technologies to connect markets	Increased Palauan participation in production, added- value, and tourism sectors; and comprehensive cross-sector profiles and planning	Nature-positive production, even in urban areas, best practices in agriculture zones, and blending of cultural practices into the supply and value chains	Reduced food waste and innovative diversion of food wastes, best practices in nature-positive agriculture, and expanded curriculum

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Table 4 (continued)

SDG						
Palau Target	<p>Target 13.1. Resilience and adaptive capacity</p> <p>Target 13.2. Integrate climate change measures into national policies, strategies and planning.</p>	<p>Target 14.4. End overfishing, IUU fishing, and destructive fishing to restore fish stocks</p> <p>Target 14.7. Economic benefits from sustainable use of marine resources</p> <p>Target 14.b. Access for small-scale artisanal fishers to marine resources and markets</p>	<p>Target 15.3. Combat desertification, restore degraded land and soil, and a degradation-neutral world.</p> <p>Table 15.7 Address both demand and supply of illegal wildlife products</p> <p>Table 15.8. Reduce the impact of invasive alien species</p>	<p>Target 16.6. Effective, accountable and transparent institutions</p> <p>Target G.16.7. Responsive, inclusive, participatory and representative decision-making</p>	<p>Target 17.6. Cooperation and access to science, technology and innovation</p> <p>Target 17.14. Policy coherence for sustainable development</p> <p>Target 17.16. Global partnership for sustainable development</p> <p>Target 17.17. Effective public, public-private and civil society partnerships</p>	
Enabling Conditions and Pathways	<i>Blue Economy Powering Green Growth; & Systems Perspective</i>	<i>Partnerships for Production; & Connecting to Culture</i>	<i>Partnerships for Production</i>	<i>Systems Perspective</i>	<i>Systems Perspective; & Partnerships for Production</i>	
Outcomes	Diversification and low-impact uses, cross-sector planning, climate mitigation and adaptation, and improved health	Increased aquaculture, best practices and zoning, increased use of traditional knowledge	Zoning and best practices, including conversion of degraded lands for nature-positive production	Cross-sector Sustainable Food Systems coordination mechanism, with data sharing	Cross-sector data sharing and pursuit of diverse Public-Private Partnerships	

(end of table)

Step 3: Short-term Implementation, Changes, and Decisions

Achieving the vision and meeting Sustainable Development Goal expectations requires immediate changes and accelerated action in the next three years. Decisions that must be made include identifying the specific roles, capacities, and contributions of each Ministry to the Food System, and developing processes to ensure that cross-sector impacts are addressed via a cross-Ministry coordination mechanism. Another key decision that must be thought out is how to utilize foreign labor more strategically, as there are divergent views on the role of foreign labor (particularly for unskilled and labor-intensive work). The scope and distribution of investment and assistance, whether at the commercial business level or at the household level, is a decision that must also be worked through.

Immediate Action:

1. Update and improve cross-Ministry coordination mechanisms and identify a dedicated lead Ministry; issue directives to mainstream Sustainable Food Systems into Ministry mandates and activities; and begin comprehensive, cross-sector planning.

Feasible Short-Term Actions (Table 5):

Action	Lead Ministry	Other Ministries who would be actively involved
2. Issue an Executive Order to create a “#BuyLocal” initiative and set forth a Minimum Buy Policy that mandates that a certain percentage of government funds be used to buy locally-produced products. Enforce the “Choose Pelagics” policy.	MOF (OOP for the EO)	MOE – Schools MOH – Facilities Other Ministries – Functions
3. Prohibit certain unhealthy foods in government facilities	MOH	All Ministries
4. Issue an Executive Order mandating nutrition outreach in government and public places	MOH and MOE (OOP for the EO)	All Ministries (and government bodies)
5. Pull together doctors and health advocates, align their messages, and identify and support a “Nutrition Champion” or “Nutrition Czar” to be the public face and to create trends ⁴	MOH	MOE
6. Work with cultural organizations to tackle the food waste issue from customary events.	MHRCTD	MII MAFE
7. Begin seeking funding and partnerships to support a transition to Sustainable Food Systems.	MOS	All Ministries

In the next three years the following milestones must be achieved for Palau to meet the 2030 SDGs:

- Streamlining regulatory regimes facing smallholders in food production
- Increasing financial opportunities and incentives to fuel Palauan participation in the Blue and Green Economies
- Integrated cross-sector Master Planning that incorporates Food Systems
- Mainstreaming of cross-sector Food Systems thinking into agency plans, with updates to Ministry and Agency plans, policies, and practices
- Development of Blue and Green Economy production and consumption profiles, with systems for data collection and sharing

⁴ Suggestions for trends include: #OperationFeedPalau; #KeledaNgercheled; #BuyLocalByLocal; #FoodChampion; #RespectProducers

- Partnerships with State Governments to expand land and water available for agriculture and aquaculture
- Formalization of Public-Private Partnerships to drive business creation
- Expanded International and Bilateral Partnerships to improve technical expertise
- Development of Palau-specific nutritional guidance and education
- Identification and opening of new markets domestically and internationally
- Technological innovation and improved use of internet for tracking and marketing
- Establishment of business-minded cooperative associations
- Scaling up of successful solutions for managing food waste (e.g. composting)

Stakeholder Involvement for Collective Action

Expanding the network of stakeholders involved in government planning is key to the success of the Pathways, and underpins game changing solutions such as establishment of Public-Private Partnerships and decentralization. Applying a Systems Perspective through a formalized coordination mechanism with diverse public and private sector involvement will ensure stakeholder involvement and collective action. Dedicated processes for data collection and sharing – not just between government ministries but also with the private sector – are also critical and this will build resilience and efficiency.

Case Studies: Scaling up successes using a Systems Perspective

The National Dialogues identified several successful solutions that are ready for implementation and scaling, and which could lead to improvements in Food Systems if a Systems Perspective is applied.

Children Eat What They Grow

A successful program at Airai Elementary School could be scaled up and expanded to multiple schools. In this program, children planted and tended to their own gardens, harvested and cooked their own healthy foods with freedom to experiment but under the watchful gaze of a school system nutritionist, and increased their consumption of healthy foods. Food System transformations can be achieved with relatively lower investment, but with improvements to health. In this case study, applying a Systems Perspective requires only the active participation of a few ministries.

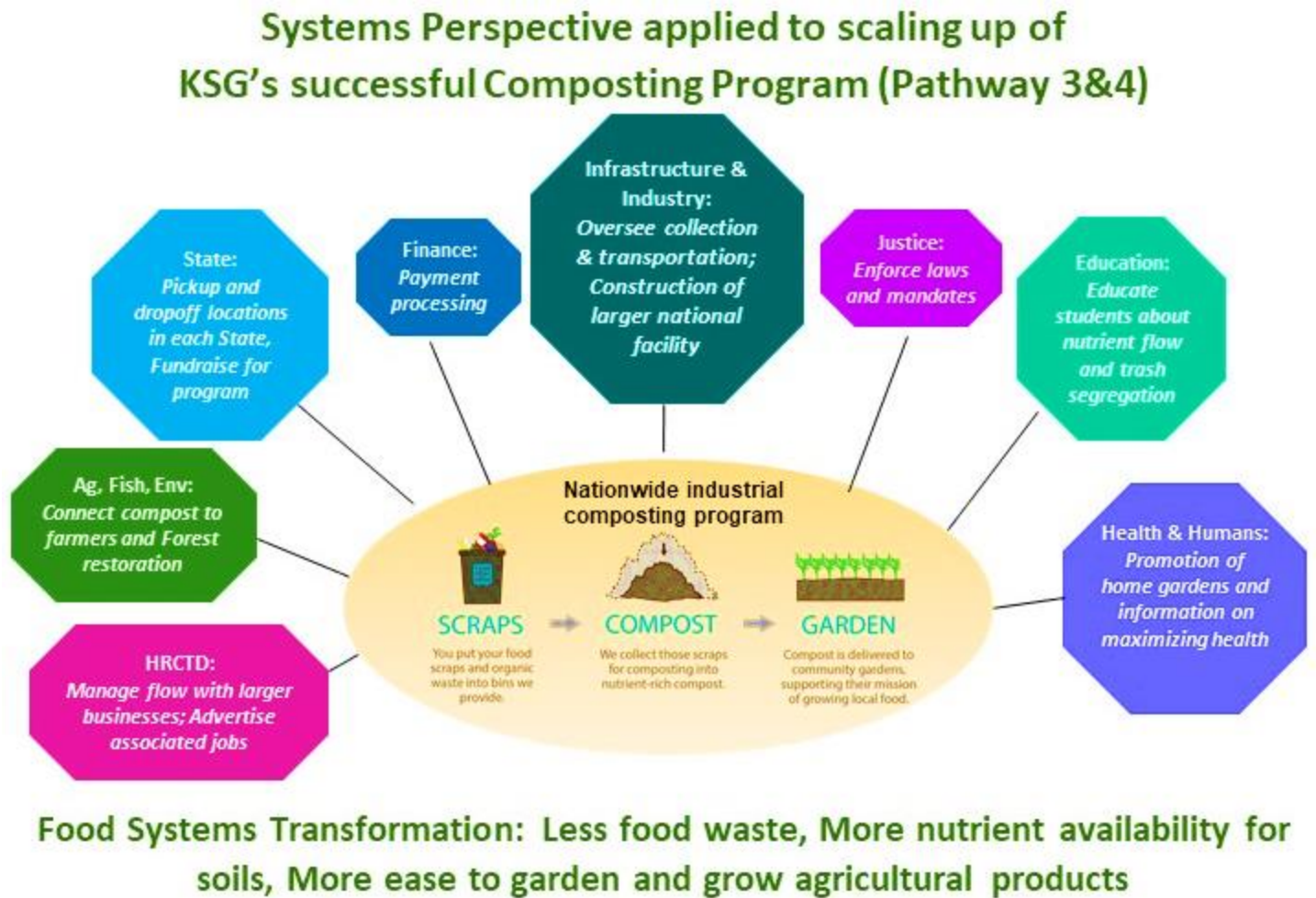
Table 6. Systems Perspective applied to scaling up of Airai Gardening and Cooking Program

MOE	MOH	MAFE
Work with schools to set up the program, set aside space, secure tools and lead teachers	Provide nutritional advice and guidance, assist with preparation of healthy foods	Best practices for gardening, provision of seedlings and compost and fertilizers

Food Waste Composting

The Koror State Government Solid Waste Management Office has successfully piloted a composting program that collects food waste from 70 households and then turns the waste into high-nutrient and highly desirable compost. Demand is currently much lower than demand. This compost is then distributed to farmers and gardeners to support improved agricultural production and restoration of degraded lands. The program decreases waste going into the national landfill, increases agricultural production and nutrient availability in poor soils, and contributes to cleanliness around homes and landfills with improvements to human health. This program provides proof of concept that households can be incentivized to segregate trash, and that these actions can work to improve food security. Figure 5 illustrates how a Systems Perspective and aspects of Pathway 3 (Transforming Consumption and Modernizing Markets) and Pathway 4 (Connecting with Culture) could be applied. In this case study, every Ministry would need to participate to achieve success.

Figure 5. Example of a successful pilot that is ready to be scaled to better achieve Food Security, if a Systems Perspective and Pathways are applied



Connections to other planning documents

These pathways move Palau towards meeting several of its international and national commitments:

International Commitments:

- *Aichi Target 7 (towards meeting UN Convention on Biological Diversity commitments)*: Increasing hectares of land and water used for agriculture, aquaculture and forestry that are managed sustainably.
- *Convention Concerning the Protection of the World Cultural and Natural Heritage*: Protection and perpetuation of traditional knowledge in agriculture and fisheries.
- *United Nations Convention to Combat Desertification*: Restoration of soil fertility through expanded production and reduction in soil erosion and avoiding chemical degradation through best agricultural practices.
- *Convention on the Rights of the Child*: Ensuring that children survive and develop healthily; with clean water, nutritious food and a clean environment so that they will stay healthy.

National Commitments:

- *Palau National Marine Sanctuary*: Sustainable Domestic Use of offshore fishery resources
- *National Biodiversity Strategic Action Plan*: Ensuring Food Security through maintenance of agricultural biodiversity by engaging the agriculture industry to incorporate best practices
- *Sustainable Land Management Strategy*: Zoning to support agricultural food production, mitigate and adapt to climate change, and minimize negative impacts to marine environments
- *Climate Change Policy*: Improved farm production, stabilizing soils, strengthening resilience among vulnerable communities and improving health services communication, expansion of carbon sinks through nature-positive production, diversification of tourism products, and introduction of waste-to-energy technologies.
- *Nationally Determined Contribution (NDC) (towards meeting UN Framework Convention on Climate Change commitments)*: Energy sector emissions reduction with additional reductions coming from the waste and transport sectors through improved efficiency in the supply chain. Indicative targets include a 22% Energy Sector Emissions Reduction target and 35% Energy Efficiency target, and expansion of solar power, contributing to a 45% Renewable Energy target.
- *Non-communicable Disease Prevention and Control Strategic Plan of Action*: Reduced obesity, diabetes, and hypertension (5-10%) and increased fruit and vegetable intake (by 50%), through public awareness through mass media on diet, food taxes and subsidies to promote healthy diets, a nationwide school policy that mandates the provision of healthy meals in all public and private schools, and an increase in healthy options (products, and in stores and restaurants).

Conclusion

Palau already has many of the enabling structures and frameworks in place to transform its Food Systems. These Pathways continue the nation's pursuit of innovative methods to take advantage of the opportunities offered by being a Big Ocean State, particularly by emphasizing a Systems Perspective and linking the Blue Economy to a growing Green Economy. As with all actions, cultural connections are essential and underpin all of Palau's pathways, so that in the end, Food Security meets human health and livelihood needs, but also strengthens Palau's environment and culture as well.

What WE can do by 2030:

We can use our strengths, expertise, and relationships to strongly partner with all Ministries, States, communities, civil society, and regional and international friends to transform our Food Systems!

Annex 1. Measures of Success: Objectives and Targets

Objectives are aligned with the UN Food Systems Summit goals and objectives, and targets are aligned with Palau's existing international and national commitments, including to SDGs and National Food Policies. To achieve the Food Systems Vision, by 2030 Palau hopes to achieve the following objectives and targets:

SAFE & NUTRITIOUS FOOD, AND HEALTHY & SUSTAINABLE CONSUMPTION OBJECTIVES and Targets (all by 2030)

- 1) Zero hunger (sufficient food)
 - a. Zero (0) cases of undernourishment, stunting, or wasting
- 2) Access and consumption of nutritious, healthy, and safe food by all
 - a. 75% of total food expenditures is for locally-produced food (up from 16%)
 - b. Prevalence of overweight and obesity among school children decreases to 20% (from 33%)
 - c. Prevalence of overweight and obesity among adults decreases annually (from 77.6%)
 - d. Mortality attributed to cardiovascular diseases, cancer, diabetes, and COPD decreased by 25% (from 70%)
 - e. A 25% increase in provision of locally produced food in schools, hospital and government functions

NATURE- & CULTURE- POSITIVE PRODUCTION OBJECTIVES

- 1) Increasing the amount of sustainable production,
 - a. Triple the amount of agricultural production (fruit trees, livestock, root crops, vegetables)
 - b. Increase the supply of sustainably DFZ-sourced pelagic fish to 600 mt/year (or in line with nutritional guidelines)
 - c. Increase aquaculture production for food by 25%
- 2) Steadily/continually offering a diversity of nutritious and safe products,
 - a. Annually increase the number and type of locally-produced added-value food products sold and consumed in Palau
 - b. Organic and Sustainable Business Certification programs are in place and accessed by an annually increasing number of local producers
- 3) Maintaining or restoring biodiversity and ecological, social, and cultural systems
 - a. Agriculture and aquaculture are at a minimum carbon neutral, or help to reduce Palau's overall carbon footprint
 - b. The majority of agriculture and aquaculture farms, whether commercial or subsistence, use Best Practices to maintain or promote biodiversity and minimize pesticide or fertilizer pollution and sedimentation
 - c. The proportion of indigenous Palauans engaged in or employed in agriculture, aquaculture, or offshore fisheries increases annually
 - d. At least one Traditional Palauan Food Restaurant is operating successfully

EQUITABLE LIVELIHOODS & VALUE DISTRIBUTION OBJECTIVES

- 1) Stable livelihoods (jobs, income, and sociocultural stability) for families and businesses from participation in the Food System, enabling a quality of life on par with other peers,
 - a. The average annual income from participation in the Food System (production, distribution, processing) is equal-to-or-greater than the per capita GDP
- 2) Fair and transparent transfer of values among users in the Food System value chain.
 - a. Profiles of producers established and enable tracking of products in the supply and value chain.

Annex 2. Detailed Descriptions of Pathways and Game Changing Solutions

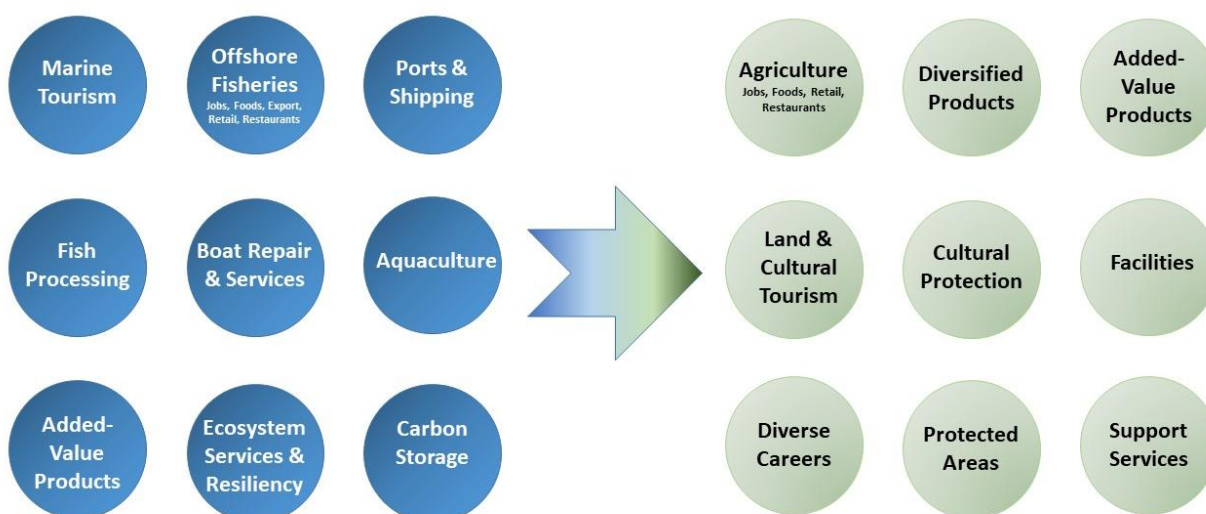
Pathway 1: Blue Economy Powering Green Growth

Palau's largest resource – its vast ocean EEZ – offers enough natural resources to support sustainable livelihoods in a variety of sectors (food protein production, tourism, industrial fishing income, conservation), yet is underutilized and constantly shifting due to climate change. Cross-sector systems planning and investment that incorporates climate adaptation, combined with action to support diversified livelihoods, will stabilize and expand Palau's Blue Economy, which will then contribute to growth of a sustainable Green Economy (see Figure 6). With the ocean providing healthy protein sources and high value jobs in fisheries and tourism, agriculture on land will supplement nutritional availability, provide that unique “cultural taste of Palau” that reflects the Pristine Paradise Palau tourism brand, and offer more diverse career opportunities, especially for vulnerable people.

Table 7. Game Changing Solutions and Example Actions – Blue Economy Powering Green Growth

Game Changing Solution	Example Actions
Increasing the number of Palauan commercial offshore and artisanal fishers utilizing the Domestic Fishing Zone	Training, financial incentives, and investment combined with strong leadership; Streamlining regulatory regimes facing smallholders in food production, and increasing financial opportunities and incentives (loans, assistance packages, etc.)
Generating demand for new fish, agricultural, and tourism products	Offering job training and processing centers to support stable and diversified supply
Innovative and low-impact use of nearshore marine habitats	Expanding vastly on high-value giant clam aquaculture and establishing new export market connections
Maximize value chain returns for farmers and fishers	Improving food infrastructure to maintain quality (cold chain facilities, tracking technologies, etc.)

Figure 6. Illustration of how Palau's “Blue Economy” can power “Green Growth”



Pathway 2: Partnerships for Production

Increasing production of Blue and Green Foods will require a wide variety of political, technical, financial/economic, environmental, and sociocultural partnerships, and will require a coordinated government response to pursue, define, and cement such partnerships. While traditional partnerships with aid and technical agencies will remain essential, new and innovative Private-Public Partnerships also need to be established, particularly with Palau's underutilized private sector. Partnerships with the private sector can drive innovation, efficiency, and commercialization within the production sectors and help establish more resilient market links while staying nature-positive and carbon neutral.

Table 8. Game Changing Solutions and Example Actions – Partnerships for Production

Game Changing Solution	Example Actions
<i>Government partnerships</i>	
Identifying, zoning, and managing increased amounts of land for commercial agriculture and nearshore environments for commercial aquaculture	Establish and strengthen Partnerships with State Governments
Ensure that local production is distributed and utilized efficiently and in accordance to greatest need	Establish and mainstream Nutrition guidance from the Ministry of Health into other Ministry actions (e.g. Ministry of Education school lunch policies and curriculum and Ministry of Agriculture, Fisheries, and Environment production policies), with data feedback loops
<i>Private sector partnerships</i>	
Decentralizing support services for aquaculture inputs (nurseries and grow-out centers), agricultural processing (mobile livestock and added-value equipment), and added-value operations in offshore fisheries (processing equipment and marketing)	Seek out and formalize Private-Public Partnerships with State Governments, National Government, and private business, academic, and NGO partners; with catalytic financial and technical support
Stabilizing supply (in fisheries and agriculture) and reducing risks from increasing production	Business partnerships to connect producers to markets and consumers (including through a possible Central Market) that provide clear demand signals
Supporting establishment of small businesses that support locally-produced foods and added-value products	Business incubation and mentoring services, plus services to create profit-sharing mechanisms between partners
<i>International (Multilateral and Bilateral) partnerships</i>	
Nature-positive and carbon neutral production	Technical assistance with siting and placement of facilities and farms, climate-resilient and carbon-neutral planning and investment into environmentally friendly soil amendments and aquaculture capacity, and technical assistance with diverting and converting food wastes into new energy and nutrient source, and assistance with solar-powered production
Diversifying and lowering costs and risks associated with inputs	Identification of new pathways to source inputs (fry, seeds, seedlings, chicks, etc.), including mechanisms to stabilize costs
Climate change mitigation and adaptation	Technical assistance with Predictions and planning, including establishment of a climate-resilient seed/seedling bank for agriculture and aquaculture.
Identifying and open new export markets	Trade Representative and negotiation partners (once nutrition and consumption objectives have been met) who negotiate new markets

Pathway 3: Transforming Consumption and Modernizing Markets

Palau needs to update policies, expand education curriculum, and increase accessibility so as to drive demand and shift consumption to healthier, locally-produced diverse foods. Expanding an existing “Choose Pelagics” policy to a cross-sector “Buy Local” policy would shift government spending to local products and increase demand. Targeted school education and broad public health outreach are both needed to improve nutritional awareness, change preferences, and to fix misperceptions about the accessibility, affordability, and safety of local foods. Aligned employment and investment policies are also needed to drive stable and effective decentralization of access points for local foods (e.g. to ensure that new stores and markets are built and that they benefit Palauan entrepreneurs). Education, training, and investment are needed to support a robust added-value and processing industry so that products can be offered in a diversity of forms. The hundreds of smallholder fishers and farmers need to be connected with local and global markets more efficiently. Creating modern, business-minded cooperative associations with buy-ins and financial returns for smallholders would build on Palau’s culture of cooperation and sharing while spreading risk, but would also facilitate modernization. Technology, including Palau’s broadband availability, high level of internet and smartphone access, high education levels, and diverse multicultural and multilateral connections, could be better leveraged to find new markets, drive demand, organize and plan supply, and connect producers to consumers.

Table 9. Game Changing Solutions and Example Actions – Transforming Consumption and Modernizing Markets

Game Changing Solution	Example Actions
Changing preferences towards healthy foods	Expanding existing nutrition curriculum and hands-on practicums to all grades and all schools, with aligned public health outreach about healthy foods.
Promoting locally-produced healthy foods	Identifying social influencers in Palau and creating partnerships to advance social media and technologically-driven “Trends”
Incentivizing and requiring healthier consumption	Establishing and enforcing “Buy Local” and “Minimum Buy” policies, shifting government spending to healthier products, easing rules to more easily purchase from smallholders or designated sustainable producers, and aligning taxes and other financial mechanisms; while simultaneously setting and enforcing policies that reduce or eliminate options to buy unhealthy, imported, or unsustainable products (especially with public funds)
Making healthy foods more attractive and affordable than imported foods	Researching and establishing financial mechanisms, including rebalancing or reducing subsidies, while supporting cooperative associations to negotiate reduced rates and guaranteed buys.
Diversifying and stabilizing supply and demand	Investing in processing and added-value operations, with particular emphasis on career training and access for women and vulnerable people, and linking diverse products with stable markets.
Tracking production and modernizing data keeping to build better profiles of consumers and markets	Converting pen-and-paper “mom-and-pop” producers, distribution points, and end consumer points to digitized and data-driven operations that track production through consumption, with feedback loops into business and operations planning
Ensuring integrity of product provenance and safety so as to maximize high values	Improved use of tracking technologies and expansion of high-value food options (e.g. such as “farm-to-table” and “dock-to-dish” programs)
Connecting supply and demand in real time	Extensive use of the internet and technologies to create central marketing mechanisms that promote, advertise, and share information about local foods and to plan supply chains, and to establish e-Commerce
Improving business practices to improve supply and reduce risk	Establishment of modernized “coops” with business plans

Pathway 4: Connecting with Culture

Increasing production of Blue and Green Foods so that the Food Systems are net positive environmentally and culturally remains a challenge, with diverging views. The scale of investment and focus, whether at the smallholder farmer or artisanal fisher level or the larger commercial operation level, is a decision that needs careful social and economic cost-benefit analysis. The role of foreign labor will also need careful analysis and planning to ensure that the scaling up production does not come at cultural cost. What is clear is that Palau's traditional cultural traditions of cooperation and sharing, combined with a strong sense of pride in conservation and Palau's pristine environment and a broad depth of knowledge of traditional farming and fishing practices that are finely tuned to the land and sea, can support a sustainable increase in production.

Table 10. Game Changing Solutions and Example Actions – Connecting with Culture

Game Changing Solution	Example Actions
Increasing Palauan indigenous citizen participation in production while utilizing foreign labor more strategically and ethically	Bringing together cultural organizations representing multiple genders, ages, and ethnicities to participate in cross-sector and culturally-appropriate planning
Strengthening cooperative associations while blending cultural practices with good business practices	Using cultural networks and traditional knowledge to build and maintain relationships on the supply and value chains
Reducing food waste, especially at Cultural Events	Involving cultural organizations in food waste planning and policies
Reinvigorate and revitalize farming and fishing as respected and desirable professions that can reliably support families and a dignified quality of life	Combining modern social and behavioral marketing with traditional knowledge to promote and educate the public and stakeholders on Palau's Sustainable Food System and their role in it, both today and in the future, to build a stronger sense of shared responsibility across genders and social groups towards contributing to overall Food Security

Annex 3. Suggested Actions for Mainstreaming into Executive Branch Agency plans and practices

Office of the President:

- 1) Executive Order establishing a Food Systems coordination mechanism with participation of every Ministry, and with requirements for data sharing and reporting
- 2) Re-issuance of the “Choose Pelagic” policy for all government purchasing
- 3) Issuance of a “Buy Local” policy for all government purchasing
- 4) Identify and task a “Nutrition Champion” or “Food Czar”
- 5) Lead participatory decision-making on the scale of investment (recognizing the current smallholder system) and on the role and extent of foreign labor.

Combined Ministries:

- 1) Elevate the issue of Food Insecurity to a National Emergency and apply standard procedures that discuss Food Systems within the context jobs, health, and culture in addition to food and nutrition
- 2) Naming of a specific Position/Person to be the Sustainable Food Systems taskmaster and working on cross-Ministry Food Security actions under the auspices of the coordination mechanism
- 3) Mainstreaming of Sustainable Food Systems into all agency and cross-sector plans and policies; or joint work on a government-wide Food Security Strategy
- 4) Combine data and pull together disparate information to build profiles of consumers, buyers, producers, and processors and their products, supply chains, and preferences, do a feasibility study on supply and demand, and then set joint targets for supply
- 5) Identify and coordinate influencers from all parts of society who can use social media to create Trends.

Ministry of State:

- 6) Sourcing new export markets and partnerships, negotiating new international funding streams to support Food Systems, and mainstreaming Sustainable Food Systems into all bilateral and multilateral negotiations
- 7) With MAFE, partnering with State Governments to meet Food System objectives (partnerships to use land and nearshore waters)
- 8) Work with States and nonprofit partners to identify vulnerable and hungry people in States
- 9) Gender mainstreaming

Ministry of Education:

- 1) Increasing the budget for locally-sourced healthy foods by at least 25%
- 2) With MOH, increasing outreach and updating educational curriculum to promote healthy consumption, change preferences, and correct misperceptions, based on Palau-specific nutritional guidelines; and make nutrition curriculum mandatory for all schools
- 3) Improving infrastructure at 100% of schools to improve food safety and decrease food waste
- 4) *Scale up:* Expand on the success of the Airai Elementary School Hands-on Gardening and Cooking Program

Ministry of Health and Human Services:

- 1) Increasing the budget for locally-sourced healthy foods by at least 25%
- 2) Creation of Palau-specific nutritional guidelines
- 3) With MOE, increasing outreach and updating educational curriculum to promote healthy consumption, change preferences, and correct misperceptions, based on Palau-specific nutritional guidelines
- 4) Establish and follow-through on Consumer Protections (e.g. registering and tracking food safety complaints, use of pesticides, etc.), ensure food handlers and farmers are regularly monitored and updated (e.g. refresher courses), and set SOPs to ensure food safety throughout the system.
- 5) *Scale up*: Expand on successful Covid-safety outreach to increase awareness of nutrition and food safety

Ministry of Agriculture, Fisheries, and Environment:

- 1) Leading a Sustainable Food Systems coordination mechanism⁵ and serving as Palau's "Food Systems Champion"
- 2) With MOS, partnering with State Governments to meet Food System objectives
- 3) Working with States and the public sector to increase production to meet targets, but include equitable distribution into planning
- 4) Promoting, training, and monitoring on Best Practices to ensure that agricultural and aquaculture production is 100% carbon neutral and nature-positive; streamline training programs so that producers also receive business management and business incubation services (with MHRCTD)
- 5) Rebalance/reduce government subsidies and "freebies" to focus on negotiated discounts or longer-term sustainable solutions to reduce costs.
- 6) Working with MHRCTD to design culture-positive production programs
- 7) With MOH and MOE, increase outreach to change perceptions about locally-grown food as being safe, healthy, abundant, affordable, accessible, desirable, and literally growing all around us.
- 8) With public-private partners, seek funding and technical expertise to invest in a climate resilient seedbank/seedling bank.
- 9) Help reduce risk for producers by establishing minimum buy programs, designated buyers, or designated networks of producers.

Ministry of Public Infrastructure and Industries:

- 1) *Scale up*: Expand on the success of the Koror State Government composting and solid waste programs to minimize food waste
- 2) Improving infrastructure to maximize quality and the value chain and incorporation of food facilities into Public Infrastructure accounting and maintenance programs
- 3) Identify and invest in basic infrastructure needs to facilitate improved production (roads, power, and water) and improved access to healthy foods.
- 4) Expanding local Palauan access to food processing, added-value, and landing facilities, including pursuit of a Central Market / Shared Processing Center, ideally via a public-private partnership
- 5) Improving internet distribution to facilitate modern market connections
- 6) Expanding solar energy access in food production
- 7) Promote and expand the use of technology in Food Systems, including e-commerce and internet-based marketing, and use of technology in innovative waste management.

⁵ MAFE is already the Chair of the National Environmental Protection Council (NEPC)

Ministry of Finance:

- 1) Enforcing “Choose Pelagic” and “Buy Local” policies in all government purchasing
- 2) Streamlining financial and taxation requirements and negotiating assistance packages to support Palauan participation in Food Systems; simplify procurement rules so that smallholders and artisans (fishers, processors) can receive higher benefits in the value chain (from government purchasing)
- 3) Housing Food System data in a central database (spatial and non-spatial)
- 4) Identify and implement financial mechanisms to make healthy food more affordable and attractive (e.g. regulate prices, set price controls, tax unhealthy imported foods, etc.)
- 5) Calculate and mainstream the true cost of unhealthy and imported foods (e.g. healthcare, solid waste, emissions) into financial plans and policies.
- 6) Align Climate Change policies with Food Security policies.

Ministry of Justice:

- 1) Providing legal and regulatory advice on the development of cross-sector policies, regulations, laws, and procedures
- 2) Enforcing labor laws within Food Systems
- 3) Promoting and enforcing cross-sector regulations and laws to ensure sustainable Food Systems
- 4) Enforcing regulations and laws regarding to resource use and poaching to ensure sustainable supply

Ministry of Human Resources, Culture, Tourism & Development (MHRCTD)

- 1) Developing and Offering Small Business Development and Training incubation programs to increase the number of Palauans in the Food Systems and the number and diversity of products being produced, and to improve negotiation, marketing, scheduling skills, etc.
- 2) Actively driving Demand of locally-produced Foods (traditional and innovative recipes using local ingredients) within the tourism sector, with aligned government policies, offer incentives to support Farm-to-Table programs, and actively promote local products.
- 3) Increasing marketing of local Food Systems and indigenous Palauan Food Traditions as culturally-respected and desirable jobs
- 4) Work with cultural organizations to identify solutions for reducing food waste as customary events.

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- Palau Conservation Society

For additional information please see: <https://sites.google.com/view/gef6palau/national-environmental-symposium> or email gef6palau@gmail.com