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## AQUACULTURE BUSINESS INVESTMENT PLANNING AND DEVELOPMENT TO INCREASE RESILIENCE AND IMPROVE FOOD SECURITY

May 2020

SDGs:



Countries:

Marshall Islands, Micronesia (Federated States of), Nauru and Palau

Project Codes:

TCP/SAP/3603

FAO Contribution

USD 499 000

Duration:

16 October 2017 - 31 December 2019

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### Implementing Partners

Marshall Islands Marine Resources Authority (MIMRA); Federated States of Micronesia (FSM) National Government – Department of Resources and Development; Ministry of Natural Resources, Environment and Tourism of Palau (MNRET); Nauru Fisheries and Marine Resources Authority (NFMRA); Secretariat of the Micronesian Association for Sustainable Aquaculture (MASA).

### Beneficiaries

Technical personnel from the aquaculture divisions of line ministries or authorities in MASA member countries; community, public and private aquaculture farmer associations in MASA member countries.

### Country Programming Framework (CPF) Outputs

Strengthened capacity for aquaculture production in the Marshall Islands (Output 2.4); Strengthened capacity for aquaculture production in Micronesia (Federated States of) (Output 2.3); Strengthened capacity for aquaculture for food security in Nauru (Output 1.3); Enhanced capacity of government on aquaculture and biosecurity governance and the private sector for responsible and sustainable aquaculture production in Palau (Output 2.4).



## BACKGROUND

Aquaculture has been identified by many Pacific Island governments as a sector with strong potential to innovate, reap productivity gains, generate employment and contribute to regional food and nutrition security and livelihood diversification. Nonetheless, against a backdrop of climate change and insufficient finance streams for such a specialized sector, aquaculture production in Small Island Developing States (SIDS) in the Pacific Region requires new streams of technical cooperation and public-private finance. This will facilitate a more sustainable transformation towards a more economically and environmentally viable and resilient aquaculture sector, in turn allowing those involved to benefit from new technologies and international best practices.

With growing regional demand for fish, aquaculture in Pacific Island Countries and Territories (PICTs) could become an increasingly important employer for rural communities. The rapid growth in production over the past three decades has been largely due to the expansion of cultured areas, technological intensification and increased use of aquafeed, at times leading to short-term increases in income and output, but also adversely impacting marine ecosystems. To this end, and through its support in developing national and regional business development and investment strategies for aquaculture, the project responds to the needs of the countries of the Micronesian Association for Sustainable Aquaculture (MASA) – comprised of the Marshall Islands, Micronesia (Federated States of), Nauru and Palau – for business planning information and tools. In strengthening the business strategy and sustainability of this sector, FAO and regional partners, such as the Pacific Community (SPC), seek to support community-led aquaculture farms, public and private sector actors along the aquaculture value chain and relevant line ministries (e.g. fisheries, marine resources and environmental authorities) in the MASA countries.

As such, national consultations on policy, regulatory and technical capacity reviews proved timely in identifying aquaculture species most suitable for investment, as part of cost-effective business development plans that pay special attention to managing biosecurity risks.

With evidence showing that the climate in the tropical Pacific will undergo significant changes, including warmer temperatures, increased rainfall, more severe weather events, continuing El Niño-Southern Oscillation (ENSO) variability and the probability that these changes will accelerate in the years to come, FAO and the MASA countries also identified the need for – and potential of – the aquaculture sector to contribute to regional food and nutrition security through livelihoods that are more resilient to slow and quick-onset weather phenomena. Similarly, in leveraging existing partnerships in the region to enhance cooperation among donors and specialized technical agencies, the project builds on the technical, investment, risk management and livelihood diversification expertise of a diverse pool of actors.

## IMPACT

By developing sustainable aquaculture business development and investment plans to improve the resilience of aquaculture livelihoods and improve the food and nutrition security of small-scale farmers, the project provided the four MASA countries and their line ministries and marine resource authorities with policy recommendations and technical guidance on sustainable aquaculture and, in particular, aquaculture business development. In light of new partnerships established and inter-sectoral consensus achieved, the four MASA countries are better positioned to plan and access new and diversified funding and technical cooperation streams. As such, the project set policy, regulatory and investment pillars for the aquaculture sector to yield higher returns, become more socioeconomically inclusive, generate new income and employment opportunities for rural communities and remain conscious of responsible marine resource management.

## ACHIEVEMENT OF RESULTS

The project facilitated, advised and guided the development of aquaculture business development and investment strategies specific to the operational and cooperation context of SIDS and PICTs. By convening public and private stakeholders and potential resource partners from the four MASA countries, the project, with facilitation by the SPC, assessed the technical, economic and social risks that prevent a more seamless transition to sustainable aquaculture production.



Within this context, the project was representative of policy, technical and stakeholder-driven actions that were necessary and interlinked in working towards achieving the SDGs. This work specifically developed necessary guidance on the pre-conditions required to ensure that sensible and economically viable investments and partnerships are made in order to create investment incentives and decent employment opportunities for the aquaculture sector, as per the following key activities..

- Marshall Islands: i) Support the development of national legislation responding to development and investment needs in the aquaculture sector, including on aquatic biosecurity; ii) Assess the economic viability, market potential and environmental sustainability of expanding commercial production of priority species, such as giant clams, corals, sponges and Moi and Pacific threadfin, and provide guidance on facilitating access to capital, research and development and finance streams; iii) Evaluate applied research and development technologies to support commercial or private sector research for new marketable species; iv) Develop an aquaculture zonation plan to streamline aquaculture licensing; v) Provide ongoing veterinary support on aquatic biosecurity and corresponding infrastructure needs; and vi) Collect production and/or value data of aquaculture produce to assess availability and profitability.
- Micronesia (Federated States of): i) Support the development of national legislation responding to development and investment needs in the aquaculture sector, including on aquatic biosecurity; ii) Assess the economic viability and environmental sustainability of expanding commercial production of priority species, such as giant clams, corals and sponges, and provide guidance on facilitating access to capital, research and development and finance streams; iii) Develop an aquaculture zonation plan to streamline aquaculture licensing; iv) Provide ongoing veterinary support on aquatic biosecurity and corresponding infrastructure needs; and v) Collect production and/or value data of aquaculture produce to assess availability and profitability.

- Palau: i) Support the development of national legislation responding to development and investment needs in the aquaculture sector, including on aquatic biosecurity; ii) Assess the economic viability, market potential and environmental sustainability of expanding commercial production of priority species, such as milkfish, giant clams and rabbitfish, and provide guidance on facilitating access to capital, research and development and finance streams; iii) Carry out market research assessments to determine opportunities to expand existing businesses and assess their potential for export; iv) Review current financial assistance frameworks and mechanisms for farmers or aquaculture developments to ensure their sufficiency, accessibility and applicability for commercial aquaculture development; v) Evaluate applied research and development technologies to support commercial or private sector research for the priority species identified; vi) Develop an aquaculture zonation plan to streamline aquaculture licensing; vii) Provide ongoing veterinary support on aquatic biosecurity and corresponding infrastructure needs; and viii) Collect production and/or value data of aquaculture produce to assess availability and profitability;
- Nauru: i) Support the development of national legislation responding to development and investment needs in the aquaculture sector, including on aquatic biosecurity; ii) Assess the economic viability, market potential and environmental sustainability of expanding commercial production of priority species, such as milkfish and giant clams, and provide guidance on facilitating access to capital, research and development and finance streams; iii) Develop loan programmes for entrepreneurs to assist in purchasing necessary equipment and supplies; iv) Evaluate applied research and development technologies to support the implementation of giant clam and milkfish production ponds for demonstration and community and farmer training purposes; and v) Collect production and/or value data of aquaculture produce to assess availability and profitability.

Building on the respective national strategies, the regional aquaculture business development strategy that was developed focused on (i) governance measures, (ii) statistical, research and development capacity strengthening, (iii) gender-sensitive and human rights-based approaches and (iv) market and value-chain analyses to ensure sustainability and investment opportunities.

## IMPLEMENTATION OF WORK PLAN

The project faced initial implementation delays due to lengthy recruitment and onboarding processes for project personnel. Moreover, some of the national consultations carried out needed to work around the fact that up-to-date data and statistics specific to the aquaculture sector tend to be limited. Consequently, this called for an adjustment to the scope of the gap analyses and capacity needs assessments carried out in each country.

From an operational perspective, certain project personnel and national stakeholders had limited availability to engage with the project due to other commitments and challenging travel logistics to and from and within the MASA countries.

Two risks identified in the risk management strategy reflected key limitations that the project faced: (i) a lack of qualified human resources to support project activities at country level and (ii) difficulty in identifying suitable consultants knowledgeable with the aquaculture sector and ensuring a timely recruitment under strict timelines. Both were identified as low-level risks during the project formulation stage but could have been assigned a higher risk level for the project to plan around them accordingly. While national project support consultants were identified for all countries, the national consultant for Nauru – in charge of facilitating discussions with government partners, non-governmental organizations and farmer groups – was unable to take up their duties; no suitable replacement was found given the limited availability of sufficiently qualified candidates. Nonetheless, all project activities for all countries were completed within the timelines and budget projected.

## FOLLOW-UP FOR GOVERNMENT ATTENTION

The national aquaculture business development strategies for the Marshall Islands and Palau have already been endorsed by their governments and are ready to be released and published, while the strategies for Micronesia (Federated States of) and Nauru are still pending further review and government endorsement. Therefore, the governments of Micronesia (Federated States of) and Nauru are invited to continue working closely with FAO and the SPC to complete the review and endorsement of their national strategies.

Moreover, FAO will continue working with the SPC to finalize both the Regional Aquaculture Business Development Strategy and the report of the Aquaculture Business and Investor Forum. The MASA countries will be invited to review the finalized documents before sharing with regional bodies, potential resource partners and other stakeholders. Once completed, all four MASA country governments are encouraged to work closely with FAO, the SPC and with one another towards the implementation of the agreed-upon regional strategy.

In light of the business development and investment plans and specific strategies for each MASA country that were presented to potential resource partners, governments and private sector representatives during the Aquaculture Business and Investor Forum, national and regional stakeholders are invited to continue working together towards establishing and leveraging the partnerships identified, in order to ensure more far-reaching impacts from these business development and investment plans.

## SUSTAINABILITY

### 1. Capacity development

The project provided capacity building support directly to national fisheries and marine resource authorities in all four MASA countries, in addition to working closely with stakeholders from different sectors as part of the identification process of social, economic and resource management conditions and restrictions. In this respect, the project enabled technical consultations for government officials and other stakeholders to identify opportunities that foster an enabling environment for effective investment planning, including on governance issues on aquaculture legislation, zoning and aquatic biosecurity, aquaculture statistics and data generation and management capacities.

As part of the stakeholder consultations and engagements, the technical discussions and advice also focused on the importance of, and need for, further market and value chain analyses and other technical requirements, such as infrastructure, feed, innovation technologies and post-harvest processing, export and market systems. In brokering partnerships and building consensus on public and private opportunities for technical cooperation and diversified sources of funding, the project ensured that national strategies represented country-specific challenges and opportunities.

The national aquaculture business development strategies developed also represented an essential source of capacity strengthening initiatives at the policy and investment levels to support the long-term sustainability of aquaculture in the MASA countries, thus providing guidance on follow-up actions needed.

### 2. Gender equality

The project recognized the need to understand the opportunities and challenges that men and women face in the aquaculture sector in light of geographical, cultural and socioeconomic dimensions within their communities that facilitate or prevent gainful participation. Thus, the project ensured equal participation of men and women in participatory planning processes, which facilitated a crosscutting and gender-sensitive mainstreaming of inputs to the national aquaculture business development strategies of each MASA country. The project promoted equitable participation in decision-making and advocated for business development plans based on decent employment and applicable knowledge transfer for all and, in addition, kept records of participants disaggregated by gender, age and ethnicity, whenever possible, for all consultation processes.

### 3. Environmental sustainability

By ensuring a holistic understanding of environmentally responsible investment in aquaculture and food systems, the project called for public and private partnerships and funding streams to support key components to sustainability of aquaculture in the MASA countries, including a focus on biosecurity risk management, marine resource management and responsible consumption and production trends.

Moreover, the project used and promoted technologies, guidelines and international best practices on environmental sustainability and natural resource management in the business development strategies and investment plans, which align closely with the Principles of Responsible Investments in Agriculture and Food Systems (RAI).

### 4. Human Rights-based Approach (HRBA) – in particular Right to Food and Decent Work

All national aquaculture business development strategies reflected safeguards and evidence-based guidelines that promote sustainable intensification in aquaculture production coupled with rural livelihoods based on decent rural employment and contributions to the progressive realization of the Right to Food. From guaranteeing that these national strategies reflected the coping mechanisms of the most vulnerable to market and climate shocks, to ensuring as wide a participatory process as possible with stakeholders, institutions and community representatives, the national and regional strategies stressed the importance of ensuring that food and nutrition security and investment benefits be accessible to all.

## 5. Technological sustainability

The project ensured that the four MASA countries see the realities from their economies and aquaculture sectors reflected in the national aquaculture business development strategies, in order to identify the challenges in, and potential drivers of, a more resilient and economically viable aquaculture sector that is better suited to contribute to national food and nutrition security among PICTs. These strategies have remained flexible and adaptable to the potential risks, ecosystem changes, climate change adaptation needs and fluctuations in global and regional aquaculture markets.

In addition, the project provided countries with opportunities to learn from each other through the regional forum discussions, especially through the SPC and its technical divisions, particularly the Division of Fisheries, Aquaculture and Marine Ecosystems (FAME). Nonetheless, all MASA countries will likely require additional technical and financial support to continue their policy and legislation review and implementation exercises.

## 6. Economic sustainability

Even though all relevant public, private and inter-governmental stakeholders actively participated in the development of national and regional aquaculture business development strategies and voiced their commitment to build on each other's work and investment mechanisms, official cooperation and funding commitments have not been finalized. Discussions at the Regional Business Development and Investment Forum identified areas for collaboration under the framework of the Regional Aquaculture Business Development Strategy, but these work modalities are pending and may not necessarily lead to funding commitments.

The project recognized the need for its results to be institutionalized; to this end, national line ministries and fisheries and marine resources authorities will benefit from the national and regional strategies developed, which serve as policy, regulatory and technical guidance materials.

## DOCUMENTS AND OUTREACH PRODUCTS

- ❑ *Aquaculture Development and Business and Investor Forum Report*. SPC. Guam. n.p. 21 pp.
- ❑ *National Aquaculture Business Development Strategy for the Federated States of Micronesia*. FAO and SPC. n.p. 27 pp.
- ❑ *National Aquaculture Business Development Strategy for the Marshall Islands*. FAO and SPC. n.p. 34 pp.
- ❑ *National Aquaculture Business Development Strategy for Nauru*. FAO and SPC. n.p. 21 pp.
- ❑ *National Aquaculture Business Development Strategy for Palau*. FAO and SPC. n.p. 28 pp.
- ❑ *Regional Aquaculture Business Development Strategy (forthcoming)*. FAO and SPC. Apia. n.p.
- ❑ *The Pacific Micronesian Association for Sustainable Aquaculture: Aquaculture Business Investment Planning and Development*. FAO Aquaculture Newsletter (FAN) No 59. M. Ikatonga Tauati. Apia. 2018. 2 pp. <https://bit.ly/36afKZ6>.
- ❑ *Aquaculture projects up and running in Micronesia*. Press release. Koror. 2019. 1 pp. <https://bit.ly/2Zc4tpx>.
- ❑ *Micronesian countries adopting aquaculture business strategy*. Press release. Guam. 2019. 1 pp. <https://www.spc.int/updates/news/2019/12/micrones-ian-countries-adopting-aquaculture-business-strategy>.

## ACHIEVEMENT OF RESULTS - LOGICAL FRAMEWORK

<b>Expected Impact</b>	<b>Improved economic and social benefits and enhanced sustainable livelihoods for local communities through the sustainable growth in production from the application of responsible aquaculture</b>		
<b>Outcome</b>	Aquaculture business and investment opportunities identified for MASA countries		
	<b>Indicator</b>	1. Number of national aquaculture business development strategies developed (Output 1). 2. Number of regional strategies developed (Output 2). 3. One regional aquaculture development, business and investor forum convened (Output 3).	
	<b>Baseline</b>	1. 0 2. 0 3. No baseline data available (indicator concerns a one-time event taking place in the future).	
	<b>End Target</b>	1. 4 (one per MASA country). 2. 1 3. 1	
	<b>Comments and follow-up action to be taken</b>	The national aquaculture business development strategies for the Marshall Islands and Palau were endorsed by their governments, while those for Micronesia (Federated States of) and Nauru are still pending further review and governmental endorsement. FAO will continue working with the SPC and the governments of Micronesia (Federated States of) and Nauru to complete the review and endorsement of their national strategies, as well as to finalize the Regional Aquaculture Business Development Strategy, which is pending endorsement by all four countries.	
<b>Output 1</b>	National Aquaculture Business Development Strategy (one per MASA country) developed		
	<b>Indicators</b>	<b>Target</b>	<b>Achieved</b>
	Number of national aquaculture business development strategies developed.	4 (one per MASA country).	Yes
<b>Baseline</b>	0		
<b>Comments</b>	The national aquaculture business development strategies for the Marshall Islands and Palau have been endorsed by their governments and are ready to be released and published, while the strategies for Micronesia (Federated States of) and Nauru are still pending further review and governmental endorsement.		
<b>Activity 1.1</b>	Regional inception workshop set up		
	<b>Achieved</b>	Yes	
	<b>Comments</b>	The project's regional inception workshop was held in Koror, Palau on 13-14 August 2018, bringing together technical and policy officials from FAO, the SPC, governments of the four MASA countries and Kiribati. In the case of Kiribati, FAO was providing technical cooperation support through a similar yet separate project under the TCP Facility (TCPf) modality (TCP/KIR/3602/C2), which served to enrich the broader regional dialogue on business development and investment plans for aquaculture.	
<b>Activity 1.2</b>	National aquaculture stakeholder consultation/technical workshop set up		
	<b>Achieved</b>	Yes	
	<b>Comments</b>	National aquaculture stakeholder consultations in each MASA country were facilitated by the SPC and the project's aquaculture business development expert, as per the 2018 timeline below. As part of these consultations, field visits to aquaculture farms were also carried out. – Palau (15-17 August). – Nauru (22-25 October). – Marshall Islands (29 October-1 November). – Micronesia (Federated States of) (4-5 December).	
<b>Activity 1.3</b>	Gap Analysis – national level capacity needs assessment		
	<b>Achieved</b>	Yes	
	<b>Comments</b>	Gap analyses on human resource capacity in each country and on potential cost-sharing solutions were carried out in order for each national aquaculture business development strategy to be informed by capacity needs assessments, risk assessments and context-specific policy and investment recommendations.	

Activity 1.4	Risk assessment and business plans prepared	
	Achieved	Yes
	Comments	<p>Governance and financial needs and risk assessments for the production of selected priority species were assessed and agreed on. This was followed by a joint assessment of technical, economic, environmental and social risks specific to a growing aquaculture sector, as well as the identification of specific actors to respond with risk mitigation strategies. Each national aquaculture business development strategy promoted the following joint activities:</p> <ul style="list-style-type: none"> <li>– Data collection on existing or potential aquaculture value chains, using secondary sources and grey literature and first-hand data collection through surveys and key informant interviews.</li> <li>– Rigorous data analysis for business and investment planning, including section assessments, value chain mapping, feasibility studies, financial planning and risk sensitivity analyses.</li> <li>– National multi-stakeholder consultations guiding the development of business and investment plans in aquaculture, with context-specific emphasis on productivity, profitability, sustainability and investments required.</li> <li>– A template was shared with the four MASA countries to help facilitate the provision of data and information required to formulate their respective strategies and specific business plans for priority species. However, insufficient national statistics and up-to-date data was a challenge faced by the project in all four countries, hence specific business plans for certain priority species were not possible.</li> </ul>
Activity 1.5	Government review of findings	
	Achieved	Yes
	Comments	<p>Drafts of the national aquaculture development business strategies were shared with the respective MASA country governments. The strategies for the Marshall Islands and Palau have been endorsed by their governments and are ready to be published, while the strategies for Micronesia (Federated States of) and Nauru are pending further review and governmental endorsement.</p> <p>FAO will continue working with the SPC and the governments of Micronesia (Federated States of) and Nauru to this end.</p>
Activity 1.6	Four national 5-year aquaculture business development strategies developed	
	Achieved	Yes
	Comments	<p>Four National Aquaculture Business Development strategies were developed for each of the MASA countries, facilitated by multi-stakeholder national consultations.</p> <p>All strategies prioritized the identification of opportunities and commitments towards economically viable and environmentally sustainable aquaculture development business models.</p>



<b>Output 2</b>	Regional Aquaculture Business Development Strategy developed		
	Indicators	Target	Achieved
	Number of regional strategies developed	1	Yes
<b>Baseline</b>	0		
<b>Comments</b>	The exchange with MASA country governments and other stakeholders on the National Aquaculture Business Development strategies served to prioritize and clarify the key areas of work and high-priority technical and investment opportunities that the regional strategy should address. Based on this feedback, FAO will continue working with the SPC and the four MASA countries to finalize and publish the regional strategy.		
<b>Activity 2.1</b>	Target countries discuss a shared aquaculture regional approach		
	Achieved	Yes	
	Comments	All four MASA countries shared and reported on the results of their respective National Aquaculture Business Development strategies, which led to agreeing on a shared regional approach as the basis for the Regional Aquaculture Business Development Strategy.	
<b>Activity 2.2</b>	Regional aquaculture business development strategy developed		
	Achieved	Yes	
	Comments	The draft Regional Aquaculture Business Development Strategy was discussed and shared for review with countries at the Regional Aquaculture Development and Business and Investor Forum held in December 2019.	
<b>Output 3</b>	Aquaculture Development and Business and Investor forum convened		
	Indicators	Target	Achieved
	One regional aquaculture development, business and investor forum convened	1	Yes
<b>Baseline</b>	No baseline data available (indicator concerns a one-time event taking place in the future)		
<b>Comments</b>	The Regional Aquaculture Development and Business and Investor Forum was organized by the SPC and FAO, 3-5 December 2019 in Guam, fostering partnership engagements in light of the four national aquaculture business development strategies. This platform facilitated dialogue opportunities with key stakeholders and potential resource partners and investors on funding and technical requirements for the Regional Aquaculture Business Development Strategy. Consequently, forum participants provided feedback to the MASA countries on the draft regional strategy.		
<b>Activity 3.1</b>	Business and investor forum convened		
	Achieved	Yes	
	Comments	Forum participants included MASA government officials, regional inter-governmental bodies, potential resource partners, and academic and research institutions, such as the University of Guam, the College of Micronesia and The Nature Conservancy, all of which weighed in on collaborating with the MASA country network to address priority areas, such as biodiversity conservation and biosecurity. During the forum, the Regional Aquaculture Business Development Strategy was reviewed, and the aquaculture business development strategies for each MASA country were presented to potential resource partners and governments. This exchange outlined the need for partnerships in order to ensure higher impacts from the aquaculture business development strategies.	
<b>Activity 3.2</b>	Business and investor forum report		
	Achieved	Yes	
	Comments	FAO will continue working with SPC to finalize the draft forum report before sharing with the four countries, potential resource partners and regional stakeholders.	

**Partnerships and Outreach**

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