



5th SPC Regional Technical Meeting on Coastal Fisheries and Aquaculture

11–14 October 2022



Original: English

Information paper 11

Summary of PICT aquaculture priority technical needs, issues and challenges

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Introduction

1. The overarching theme of RTMCFA5 is to discuss and address some of the main technical issues affecting coastal fisheries and aquaculture in support of better evidence-based resource management, the equitable access to resources, and to enhance the sustainable development of aquaculture and nearshore livelihoods.
2. The RTMCFA meetings focus on specific priority issues with input from member country government and territory administrations. For all previous RTMCFA meetings the format of the meeting has been to maximise input through group discussions and plenary sessions. This will continue for RTMCFA5, but due to being a hybrid meeting, it will need to focus on a limited number of high priority issues.
3. Prior to each Regional Technical Meeting on Coastal Fisheries and Aquaculture, SPC member Pacific Island countries and territories are sent a brief questionnaire on current national coastal fisheries and aquaculture issues, challenges and priority needs, and actions taken since the previous RTMCFA.
4. For the 5th Regional Technical Meeting on Coastal Fisheries and Aquaculture (RTMCFA5), due to the time and format constraints of a hybrid meeting, SPC sent all the member nominated PICT fisheries agency participants a brief questionnaire on their national coastal fisheries and aquaculture issues, challenges and priority needs. SPC has compiled the responses received from members in the table below and will present a summary during RTMCF5.
5. The questions asked were:
 - a. Provide a *very brief* description of your two highest aquaculture priority technical needs.
 - b. *Briefly* outline 2–3 of your main technical issues or challenges in aquaculture over the last year.
 - c. *Briefly* outline 2–3 follow-up actions that your agency has taken related to the [RTMCFA4 Outcomes and Agreed Action Plan](#)¹

Summary of the results for aquaculture

6. The following summarises the submissions received by SPC member PICTs into common themes across the region for, a) priority technical needs; and b) technical issues or challenges.
7. All the submissions received have been captured in full in the summary table, provided as Information Paper 2. Due to the timing of receiving submissions, they could not be translated before the meeting.

¹ <https://purl.org/spc/digilib/doc/ezfxn>

Aquaculture priority technical needs

8. The following table summarises the aquaculture priority technical needs in descending order of the number of PICTs identifying subject areas and specific fields. The number of SPC PICTs that identified these subject areas as priorities are also shown.

Priority technical needs	No. of PICTs
Subject area ➤ Specific fields	[n = 13]
1. Production <ul style="list-style-type: none"> ➤ National hatchery facilities, particularly for mariculture (such as for shellfish like oysters and giant clams, high-value finfish, selected edible seaweeds, marine shrimp) ➤ Strategies to increase blacklip pearl spat catching ➤ Scaling up seaweed production ➤ Value adding, quality assurance, and marketing ➤ Sea cucumber hatchery production SOP ➤ International support for local sea cucumber farming ➤ Development of milkfish aquaculture ➤ Enriched livestock water for aquaculture irrigation purposes ➤ Sea ranching, and seed production for aquaculture and coastal fisheries restocking purposes ➤ Polyculture in water lagoons with variable salinity ➤ Bioremediation and integrated multi-trophic aquaculture for shrimp wastewater treatment ➤ Evaluation of the sustainable exploitation potential of sea cucumbers ➤ Alternative feed options, such as local feed production and import of aquaculture feeds ➤ Equipment for aquaculture systems 	8
2. Technical aquaculture knowledge, training and support: <ul style="list-style-type: none"> ➤ Improved skills and scientific knowledge of new aquaculture commodities ➤ Advanced farming and culture techniques ➤ Seed production ➤ Feed production ➤ Strengthen farming, harvest and export protocols for sea cucumbers ➤ Seed production (giant clams, finfish) manual and business plan ➤ Need technical and scientific support to develop small low-cost hatchery (clams, oysters) and support food safety and quality assurance measures ➤ Capacity building of national aquaculture staff 	9
3. Assessing feasibility of new products / species of interest <ul style="list-style-type: none"> ➤ Spawning and rearing techniques ➤ High-value species ➤ Research spawning of new local marine species (mangrove oysters, urchins, finfish) ➤ Integrated multitrophic aquaculture and shrimp farming 	9
4. Robust data for management <ul style="list-style-type: none"> ➤ Development of database ➤ Improve data collection and storage ➤ Regional database for aquaculture ➤ Support for new digital technologies 	3

Priority technical needs	No. of PICTs
Subject area ➤ Specific fields	[n = 13]
5. Aquatic biosecurity ➤ National quarantine facility for aquaculture species ➤ Policies for importation of GIFT tilapia and seaweed SOPs ➤ Aquatic disease alert system ➤ Hatchery parasite management ➤ Develop SOPs for import and culturing of introduced species	3
6. Community-based aquaculture ➤ Review of fish farming-market gardening models ➤ Enhance skills and capacity in community aquaculture ➤ Transfer of knowledge to communities in management areas	2
7. Market access ➤ Product certification ➤ Identify market access and trade gaps ➤ Compliance with phyto-sanitary standards of trading partners	3
8. Communications and awareness ➤ Publication of popularised technical guides ➤ Communication tools on the benefits and risks of aquaculture	1
9. Support good governance ➤ Aquaculture strategy and commodity development plan ➤ Strategies for dealing with natural disasters, extreme weather events, and poaching	3
10. Aquaculture business training ➤ Business training and investment	1
11. Environmental sustainability ➤ Remediation strategies on global warming effects	2
12. Funding: ➤ Increased donor support for aquaculture ➤ Assistance for fish cage materials	3
13. Sea ranching: ➤ Techniques to produce and release juveniles, and monitor the results ➤ Equitable business models for marine tenure, processing and marketing	4

Aquaculture technical issues and challenges

9. The following table summarises the identified aquaculture technical issues and challenges. The number of SPC PICTs that identified similar issues or challenges are also shown in descending order.

Technical issues and challenges	No. of PICTs
	[n = 13]
<ul style="list-style-type: none"> • Capacity and technical skills constraints <ul style="list-style-type: none"> ○ Limited capacity for priority species ○ Lack of properly trained and skilled technicians 	7

Technical issues and challenges	No. of PICTs
	[n = 13]
<ul style="list-style-type: none"> • Availability of farm inputs (feed, seed, broodstock, capital, equipment) <ul style="list-style-type: none"> ○ low hatchery seed production ○ shortage of quality feed ○ suitable feed to be manufactured locally ○ Access to finance for small holder farmers limited ○ Absence of good quality broodstock ○ Lack of materials or equipment for aquaculture farms 	7
<ul style="list-style-type: none"> • Infrastructure for aquaculture <ul style="list-style-type: none"> ○ Lack of space/land area, and access (marine tenure) ○ Limited inter-island transportation and communication ○ Hatchery and quarantine facilities ○ Access to affordable and appropriate technology ○ Logistical challenges and shipment of equipment 	3
<ul style="list-style-type: none"> • Limited policies and regulatory framework <ul style="list-style-type: none"> ○ Lack of framework to address import on fisheries ○ Aquaculture governance (policy and regulation) ○ Lack of legal clarity on development of marine space for aquaculture 	3
<ul style="list-style-type: none"> • Feasibility assessment <ul style="list-style-type: none"> ○ Economic viability to improve cost benefit analysis of projects ○ Need for socio-economic assessment of new artisanal aquaculture developed ○ Lack of potential species for trial 	1
<ul style="list-style-type: none"> • COVID impacts <ul style="list-style-type: none"> ○ Foreign technicians/experts not able to come into the country ○ Affected development of legal frameworks for aquaculture and aquatic biosecurity ○ Shipping costs have greatly increased 	2
<ul style="list-style-type: none"> • Lack of data for management purposes <ul style="list-style-type: none"> ○ Weak data collection for monitoring 	2
<ul style="list-style-type: none"> • Biosecurity <ul style="list-style-type: none"> ○ Animal welfare (validation of stress tests of hatchery products – fry, post larvae) ○ Use of antibiotics vs probiotics in shrimp hatchery ○ Inability to import biological materials (e.g. live feeds like micro-algae, brine shrimp), and new species or improved varieties of existing species, for aquaculture ○ Lack of capacity to monitor and manage aquaculture for compliance with import standards of trading partners for some commodities (e.g. shellfish intended to be eaten raw). 	4
<ul style="list-style-type: none"> • Market access <ul style="list-style-type: none"> ○ Difficulty in accessing export market due to remote locations, or to lack of capacity to comply with phyto-sanitary standards for trade, e.g. bivalve shellfish, seaweed, giant clams, and new species 	1
<ul style="list-style-type: none"> • Extension support and awareness <ul style="list-style-type: none"> ○ Poor cooperation from communities to support small scale aquaculture ○ Lack of interest by communities and youth 	2
<ul style="list-style-type: none"> • Environmental consideration <ul style="list-style-type: none"> ○ Cultured species considered invasive (e.g. tilapia) ○ Extreme weather events and natural disasters (cyclones, floods, droughts, earthquakes, tsunami, volcanic eruptions) 	3

Technical issues and challenges	No. of PICTs
	[n = 13]
<ul style="list-style-type: none">• Farm husbandry and management<ul style="list-style-type: none">○ Development problem in nursery phase of marine finfish○ Hatchery management issues (e.g. shrimp hatchery)○ Theft and poaching of aquaculture farm stock	4