



Food and Agriculture
Organization of the
United Nations

Report of the project inception workshop



**Project for improving livelihoods through sustainable nearshore fisheries in the Pacific
FishFAD**

FIJI

KIRIBATI

MARSHALL ISLANDS

PALAU

SAMOA

TUVALU

VANUATU

Report of the project inception workshop

Food and Agriculture Organization of the United Nations
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ABBREVIATIONS AND ACRONYMS

EPIRB	Emergency Position Indicating Radio Beacon
FAD(s)	Fish Aggregating Device(s)
FAO	Food and Agriculture Organisation of the United Nations
GCP/SAP/002/JPN	“Enhancing livelihoods for food security through fisheries with nearshore fish aggregating devices (FADs) in the Pacific Ocean” project
GPS	Global Positioning System
ICTs	Information and Communication Technologies
IUU	Illegal, Unreported and Unregulated (fishing activity)
JICA	Japan International Cooperation Agency
kg	Kilogram
m	Metre
NGO	Non-government organisation
NZD	New Zealand Dollar
OBM	Outboard motor
OFCF	Overseas Fisheries Cooperation Foundation of Japan
PhD	Doctor of Philosophy
PICTs	Pacific Island countries and territories
PLB	Personal Locator Beacon
PMSP	Pacific Marine Safety Programme (New Zealand)
RMI	Republic of the Marshall Islands
SDG	Sustainable Development Goals
SPC	Pacific Community

SSF	Small-scale fisheries
TAILS	E-reporting application used to collect various data from artisanal fisheries
ToT	Training of trainers
TVET	Technical and Vocational Education and Training
USD	United States dollar
USP	University of the South Pacific
VHF	Very high frequency (radio)
VMS	Vessel monitoring system

1. INTRODUCTION

This report summarises the activities and outcomes of a project inception workshop held at the Nalagi Hotel in Nadi, Fiji from the 3 – 6 February 2020. The goal of the workshop was to ensure all stakeholders:

1. understand the goals of the ‘Project for enhancing livelihoods and food security through fisheries with nearshore fish aggregating devices in the Pacific Ocean’;
2. identify/confirm activities (at the national and regional level) they will tackle in the short term and over the course of the project;
3. identify where there is leverage and synergies with other projects / partners; and
4. have an overview of the full draft workplan across countries thereby identifying that different activities and different levels of investment will happen in each country, and along different time lines.

The workshop focus was on developing detailed one year workplans for two components of the project. Component 1: Community nearshore fish aggregating device (FAD) programmes are strengthened and developed to provide improved access to high value species, and component 4: Safety at sea for FAD fishers is improved. The report is structured according to the four days of the workshop and is intended as a record of discussions for reference by the FAO project team, participating country participants, resource people, partners and consultants. Component 2 and Component 3 of the project will be addressed in detail at a separate workshop later in 2020. The workshop was facilitated by Anne-Maree Schwarz with extensive inputs from a number of resource persons who are identified in the agenda for each day.

2. DAY 1

The purpose of Day 1 was to understand project goals and to identify country and regional priority activities, with the agenda for the day presented in Table 1.

Table 1

Agenda for the first day of the workshop with presenters listed.

AGENDA THEMES	AGENDA DETAIL	PRESENTER
Workshop introduction	Registration	
	Official Opening	Ms Mele Tauati
	Participant Introductions	
	Introduction to the project	Ms Jessica Sanders
	Expectations	
Country priorities	Country priority activities for four components	Mr Lindsay Chapman and country reps
Regional priorities	Regional priority activities for four components	Mr Lindsay Chapman
Partner organisations	Introducing partner organisations	Ms Mele Tauaiti

2.1 WORKSHOP INTRODUCTION

The MC for the workshop official opening was Ms Mele Tauati. Following the opening prayer, welcome remarks were given by the FAO Subregional Coordinator for the Pacific, Ms Eriko Hibi. The official remarks on behalf of the Government of Japan were given by the First Secretary and Head of Development Cooperation, Embassy of Japan in Fiji, Mr Taisuke Iwano. The official remarks to open the workshop were given by the Honourable Semi Koroilavesau, Minister for Fisheries in Fiji.

After morning tea, when the Minister had departed, the workshop began. All participants introduced themselves going around the group in a circle. A participants list is given in Appendix 1.

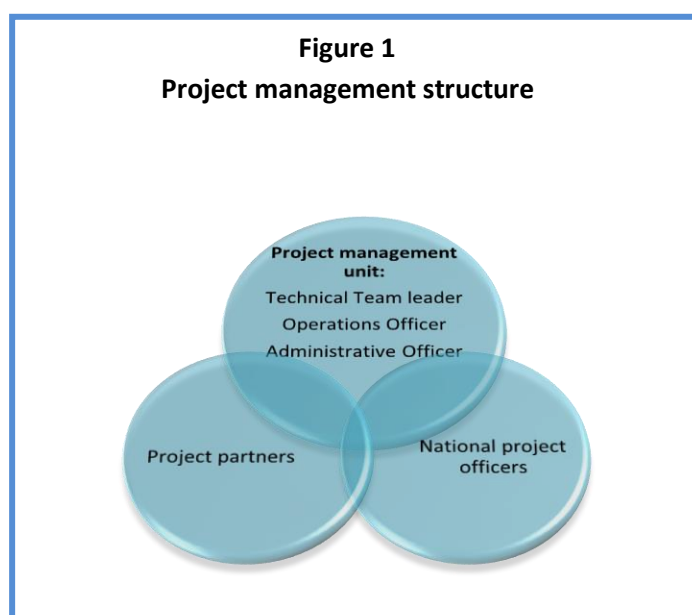
Ms Jessica Sanders from the Subregional FAO Office for the Pacific Islands then gave a presentation on the '*Enhanced livelihoods for food security through fisheries with nearshore FADs in the Pacific*' project (GCP/SAP/002/JPN), and the purpose of this workshop. She highlighted the following:

- seven countries are currently involved in the project: Fiji, Kiribati, Marshall Islands, Palau, Samoa, Tuvalu and Vanuatu, with Tonga attending the inception workshop to express interest in the project;
- timeframe: April 2019 – April 2022; and
- The project will work with national fisheries agencies, fisher associations, NGOs, community groups, private sector, regional and international partners.

The four components of the project were introduced. The two components that were the focus for workplan development during this inception workshop are highlighted in bold.

- **Component 1: Community nearshore FAD programmes are strengthened and developed to provide improved access to high value species.**
- Component 2: Fishers' associations and cooperatives are structured and strengthened.
- Component 3: Livelihood opportunities and revenue generating activities (ecotourism, sports fishing) are developed.
- **Component 4: Safety at sea is improved for FAD fishers.**

The project management structure was introduced (Figure 1), noting that recruitment of the technical team leader would be finalized, and national project officer recruitments would begin, after this workshop.



staff of other government departments and other stakeholders including fisher cooperative managers and members and fishers themselves. In some cases, follow-up interviews were held to clarify some information. Infrastructure for small scale fisheries, such as locations for ice plants, solar freezers etc., were also documented. The current status of the national FAD programme was also documented with any available data on FAD numbers, location and whether active or lost, as well as any catch and effort data. The SPC matrix or checklist for assessing progress towards a sustainable National FAD Programme was also completed, and this highlighted gaps the project could address.

With the above information, the baseline could be set and the needs and gaps identified in the four areas the project is focused; FADs and FAD programmes, Establishing and/or assisting fisher coops and/or fisher associations, Livelihood activities, and Sea safety. A range of activities were then presented in these four project intervention areas for each country to prioritize.

This provided the content for the next session in the workshop, with the seven countries presenting their priority activities, comprising a total of five top priority and five second level priority activities across the four project areas.

A summary of country activities presented on Day 1 for Component 1 FADs is shown in Table 2. These activities were reviewed during the workshop and are expected to be finalized in further discussions between the technical team leader and individual countries. Updated summaries for all components and all countries are to be kept up to date and in a 'living workplan document' by the project management unit as implementation proceeds.

Table 2: Summary of national priority activities identified by the seven project countries.

ACTIVITIES FOR SEA SAFETY	FUJI	KIRIBATI	MARSHALLS	PALAU	SAMOA	TUVALU	VANUATU
Review of current national FAD programme to identify lessons learned over the years.	●	●	FAO TCP ●	●	●		●
Development of a national FAD programme ensuring stakeholder input			FAO TCP ●		Started with SPC		
Develop a national FAD management plan through a consultative process	Under way	Under way	FAO TCP ●	●	Under way	●	●
Development of a FAD committee of some sort for stakeholder input to FAD programme	●	●	Established	●			

ACTIVITIES FOR SEA SAFETY	FJI	KIRIBATI	MARSHALLS	PALAU	SAMOA	TUVALU	VANUATU
National training on data collection on FAD catches, possibly using SPC's TAILS software	●	●	FAO TCP ●	●	●	●	●
Develop an outreach programme to raise awareness of the importance of FAD catch data	●	●	●	●		●	
Pilot project for FAD deployments, linked with fisher Assn/Coops input		●					●
Strengthen governance structure and regulations on the provision of fisheries data			●	●		●	
Dedicated staff needed for developing and implementing the national FAD plan				BMR			
Study undertaken to identify barriers or reluctance of fishers to fish for tuna/pelagics				●			
Training in FAD rigging, deploying and FAD fishing techniques provided to fishers		●		●	●		●
Review of current FAD designs with SPC, including buoy systems being used nationally					SPC? ●		SPC? ●
Trialling of small VMS or AIS units for vessels fishing offshore					●		
Trialling new FAD monitoring guidelines developed by SPC and FAO with local fishers					●		

●
●
●
●

Activity identified in baseline

Top priority

Second tier priority

Being done through another project

2.3 REGIONAL PRIORITIES

The regional activities were presented by the FAO consultant, Mr Lindsay Chapman. The regional activities were developed from activities that were suggested by several countries as national activities, but were more regional in nature, or based on some thoughts from other stakeholders, FAO and the consultant. Overall there were 12 proposed regional activities across the four work areas of the project, and these were presented with a brief description of the rationale or thinking behind each suggestion. Following the presentation the participants were divided into five groups to discuss the activities (each group had a card for each of the 12 activities), suggest changes or additional wording, add any new ideas, and then indicate timing (months: 1-6; 7-12; 13-24; 25+). Each group then presented their feedback, stuck their 12 cards on the wall under the suggested timing, and provided any new activities with a brief description.

Table 3 provides the scoring for the five groups across the four work areas of the project. Of the eight regional activities suggested under the FAD work area, one was a top priority in the first six months of the project (scored 5) and another three ranked second level (scored 3 or 4), with another two ranked as second level for implementation in year two of the project. Both activities proposed under the second work area, fisher associations or cooperatives, were ranked second level (scored 3 or 4) for implementation in year two. The one livelihood activity did not rank highly, while the one activity under sea safety identified as a priority (scored 5) for implementing in the first half of year one.

Table 3: Ranking, scoring and timing of the 12 proposed regional activities

	Months 1 to 6 of project						Months 7 to 12 of project						Months 13 to 24 of project						Months 25 plus of project					
	G4	G5	G6	G2	G3	Total	G4	G5	G6	G2	G3	Total	G4	G5	G6	G2	G3	Total	G4	G5	G6	G2	G3	Total
Outcome 1: Community nearshore FAD programmes are strengthened and developed to provide improved access to high value species																								
Activity 1.1.1: Regional study on environmentally friendly or eco-friendly FAD designs and materials for anchored FADs	•		•	•		3					•	1	•					1						
Activity 1.1.2: Regional study on the effectiveness of FADs as a management tool - have they moved fishing effort away from reef fisheries?	•		•	•		3							•				•	2						
Activity 1.1.3: Possibly a regional review of FAD designs with a focus in different buoy systems and anchor systems for different depths	•	•	•	•	•	5																		
Activity 1.1.4: Establishing a FAD network between the 7 participating countries with annual meeting to discuss FAD experiences		•				1	•		•			2				•	•	2						
Activity 1.1.5: South-south exchanges focused on FADs between the 7 participating countries, but also with other regions such as the Caribbean		•			•	2							•		•	•		3						
Activity 1.1.6: Study undertaken to identify the safe consumption levels of tuna and other pelagics, with Palau one case study	•					1			•			1	•					1					•	1
Activity 1.3.1: Regional workshop for using TAILS for data collectors (probably in Fiji)	•	•		•	•	4									•			1						
Activity 1.3.2: Regional workshop for analysing the data collected from TAILS on FAD catches and management implications							•					1	•	•	•	•		4						

Table 3: Ranking, scoring and timing of the 12 proposed regional activities. (continued)

	Months 1 to 6 of project						Months 7 to 12 of project						Months 13 to 24 of project						Months 25 plus of project					
	G4	G5	G6	G2	G3	Total	G4	G5	G6	G2	G3	Total	G4	G5	G6	G2	G3	Total	G4	G5	G6	G2	G3	Total
Outcome 2: Fishers' associations and cooperatives are structured and strengthened																								
Activity 2.1.1: Multi-region workshop (Pacific and Caribbean) for cooperative managers to share knowledge and experiences.							•					1	•		•	•		3				•	•	2
Activity 2.1.2: South-south exchanges for association / cooperative managers between the 7 participating countries, but also with other regions such as the Caribbean.							•				•	2	•		•		•	3						
Outcome 3: Livelihood opportunities and revenue generating activities (RGAs) (ecotourism, sports fishing) are developed																								
Activity 3.1.1: Regional study on marine-related livelihood activities and their effectiveness - what are the challenges, lessons, and what has worked?	•			•		2					•	1	•	•				2						
Activity 4.1.1: Study on EPIRBs, PLBs and other such devices looking at the cost, effectiveness and longevity of the units in isolated locations, including replacement or maintenance costs.	•	•	•	•	•	5																		
TOTAL						26						9						22						3

2.3.1 DISCUSSION ON REGIONAL PRIORITIES

The second part of this exercise was to provide an opportunity for the participants to review the wording of the proposed 12 regional priority activities and amend or add additional activities. Table 4 provides a summary of amendments, with wording changes or rather additional wording added to most, and five new activities added. There was an additional three activities proposed (recorded at bottom of table in red) that were more national rather than regional. The proposed revised and new activities were presented back to countries on day three of the workshop, and more comments were received. Table 4 includes the comments received from these discussions as well.

The session ended with a query on who will undertake the regional work and work together with the countries. It is expected that consultants will be hired and the terms of reference for the regional activities will need to be determined after this meeting, and before hiring can commence.

Table 4: Revised or additional wording for the 12 proposed regional activities plus the five new activities proposed. Changes and new activities inserted below in dark orange.

Outcome 1: Community nearshore FAD programmes are strengthened and developed to provide improved access to high value species

Activity 1.1.1: Regional study on environmentally friendly or eco-friendly FAD designs and materials for anchored FADs

Activity 1.1.2: Regional study on the effectiveness of FADs as a management tool - have they moved fishing effort away from reef fisheries? Also, include the impact of nearshore FADs on coastal reef resources.

Activity 1.1.3: Possibly a regional review of FAD designs with a focus in different buoy systems and anchor systems for different depths. Also, include bathymetric profiles, different conditions, costings, and average duration of FADs to inform management. Also include FAD longevity as part of the study on different FAD designs.

Activity 1.1.4: Establishing a FAD network between the seven participating countries with annual meeting to discuss FAD experiences. Also, include the integration of FAD programme into community-based fisheries management programme (to improve management of FADs and look to achieve two year lifespan of FADs).

Activity 1.1.5: South-south exchanges focused on FADs between the seven participating countries, but also with other regions such as the Caribbean.

Activity 1.1.6: Study undertaken to identify the safe consumption levels of tuna and other pelagics, with Palau one case study.

New Activity 1.1.7: Develop guidelines or standard operating procedures (SOP) for deploying FADs.

Activity 1.3.1: Regional workshop for using TAILS for data collectors (probably in Fiji). Also include a review and/or assessment of incentive mechanisms for fisher data collection or submission. Also link with activity 2.1.1 to provide training to fisher coops and/or associations.

Activity 1.3.2: Regional workshop for analysing the data collected from TAILS on FAD catches and management implications. Also link with activity 2.1.1 to provide training to fisher coops and/or associations. Also include analysis of economic and social data.

Outcome 2: Fishers' associations and cooperatives are structured and strengthened

Activity 2.1.1: Multi-region workshop (Pacific and Caribbean) for cooperative managers to share knowledge and experiences. Also link with activities 1.3.1 and 1.3.2 to provide training on TAILS.

Activity 2.1.2: South-south exchanges for association / cooperative managers between the seven participating countries, but also with other regions such as the Caribbean.

Outcome 3: Livelihood opportunities and revenue generating activities (RGAs) (ecotourism, sports fishing) are developed

Activity 3.1.1: Regional study on marine-related livelihood activities and their effectiveness - what are the challenges, lessons, and what has worked?

New Activity 3.1.2: Workshop for "train the trainer" training in value-adding for fish products.

New Activity 3.1.3: Research on improved technology for increasing production in post-harvest area.

Outcome 4: Safety at sea for FAD fishers is improved

Activity 4.1.1: Study on EPIRBs, PLBs and other such devices looking at the cost, effectiveness and longevity of the units in isolated locations, including replacement or maintenance costs. Also include in the study, life jackets (CO₂), other equipment in grab bags and small-boat vessel monitoring systems.

New Activity 4.1.2: Workshop to "train the trainers" in outboard engine maintenance and the maintenance of EPIRBs and other such devices (in grab bags).

New Activity 4.1.3: Regional train the trainer workshop on sea safety.

New activities that are more National and not Regional

1. Review and develop National Fisheries Legislation and policies on FADs.

2. Value chain analysis of FAD fishing.

3. Community training on FAD fishing techniques.

2.3.2 FISHERS DISCUSSION ON PROJECT COMPONENTS

While the discussion on regional activities was underway the fishers attending the workshop met as a separate group. The intent was to have a preparation session for the fishers to discuss what they had heard so far in the workshop and to make up a list of the activities or opportunities that they could begin to identify. A summary of feedback from that session is given below.

Review of FAD design/what works

- fishers want an improved understanding on the loss of FADs (how to improve longevity)
 - issues: deep depths (Palau), longliners (Fiji), strong currents (Marshalls), large vessels cutting ropes (Tuvalu); and
- interactions with industrial fisheries: some countries require public awareness or know how for reporting of incidences to reduce offshore vessels coming too close to FADs.

FAD monitoring/data

- there is often a duplication of data being request from fishers (e.g. both logsheet and market sales data being requested); and
- governments want data: fisherman want data (but in a summarised form).

Fisher associations

- there remains a hesitation to formalise fisher associations (e.g. to fish coop) in Fiji as there is a perception of a loss of independence (coops are more driven/linked to government): What is the acceptable level of formalisation for associations?;
- important to consider income generation within the project; and
- is there a model boat for small-scale tuna fishing that is suitable for offshore fishing with inbuilt safety?

2.4 PARTNER ORGANISATIONS

The final session of Day 1 aimed to introduce the organisations with potential to partner with the project. FAO consultant, Ms Mele Tauati, first provided a brief overview for six of the project’s main partners who were present at the workshop. They include technical agencies (Pacific Community (SPC), Japan International Cooperation Agency (JICA), Overseas Fishery Cooperation Foundation of Japan (OFCF), WorldFish), research institutions (University of the South Pacific (USP)), as well as the private sector (Yamaha Japan). These partners are able to work in all of the seven countries under the project, except for OFCF who can work in Fiji, Kiribati, Marshall Islands, Palau and Tuvalu only.

All of the potential partners confirmed technical expertise in three of the four project areas (nearshore FADs, livelihoods and safety at sea). Some specific examples of technical expertise from each partner across the four project areas are summarized in Table 5. In addition, Maritime New Zealand, has also been identified as an important partner in the project to collaborate with on sea safety.

Table 5: Partner technical expertise matrix against project activities.

PROJECT AREA	PARTNER	SPECIFIC EXAMPLES OF CURRENT EXPERTISE AVAILABLE
Nearshore FADs	SPC	<ul style="list-style-type: none"> • training on FAD rigging and deployment; • training on FAD monitoring (TAILS+); and • Development of national FAD management plans.
	JICA	<ul style="list-style-type: none"> • fisheries training courses, which includes FAD deployment through south-south exchanges in Okinawa.
	OFCF	<ul style="list-style-type: none"> • assessing the effectiveness of FAD networks (Palau); and • guidance of training workshops on FADs construction and deployment, and fishing technologies around FADs (Kiribati).
	WorldFish	<ul style="list-style-type: none"> • adapting designs and testing impact using digital monitoring (Timor-Leste); and • social-ecological resilience through developing and testing gender integrated co-management approaches.
Fishers associations/ cooperatives	WorldFish	<ul style="list-style-type: none"> • social-ecological resilience through developing and testing gender integrated co-management approaches; and • participatory action research with women’s associations, market vendors associations.

Table 5: Partner technical expertise matrix against project activities. (continued)

PROJECT AREA	PARTNER	SPECIFIC EXAMPLES OF CURRENT EXPERTISE AVAILABLE
Livelihoods	SPC	<ul style="list-style-type: none"> • economic assessment of livelihood activities; and • training in small-scale fisheries.
	JICA	<ul style="list-style-type: none"> • "Grace of the Sea Project", assisting in community livelihood opportunities (Vanuatu), and • fish marketing.
	OFCF	<ul style="list-style-type: none"> • new fishing gears (sub-surface trolling rig) (Tuvalu); • fish handling and processing (Tuvalu); and • introduction of electric-powered reel for deep water fishing (Nauru).
	WorldFish	<ul style="list-style-type: none"> • enhanced livelihood diagnostics; and • post-harvest / value-adding innovations.
Safety at sea	SPC	<ul style="list-style-type: none"> • training on sea safety and provision of safety gear; and • development of sea safety regulations for small fishing boats.
	JICA	<ul style="list-style-type: none"> • outboard Engine Technician (Kiribati).
	OFCF	<ul style="list-style-type: none"> • support of outboard motor maintenance workshops (Kiribati); and • boat repairs e.g. equipment for marine safety (navigation lights, deck lights), winch of slipway (Nauru).
	WorldFish	<ul style="list-style-type: none"> • high resolution vessel tracking and using digital tools and ICTs for enhanced wellbeing in small-scale fisheries.
	Yamaha	<ul style="list-style-type: none"> • supply of fishing boats and outboard motors; • training on outboard motor repairs and maintenance; and • training on sea safety.
All	USP	<ul style="list-style-type: none"> • capacity building, education, research e.g. host symposiums for students on research topics, collaboration with other universities and research institutions in Japan.

The overview was followed by a panel discussion with representatives from each partner organization: Mr Ian Bertram (SPC), Mr Tamio Shinya (JICA), Mr Koichi Sakonju (OFCF), Mr Motoki Watanabe (Yamaha), Mr Jokim Kitolelei (USP), Mr Alex Tilly (WorldFish) and Mr Tony Parr (Maritime New Zealand), Figure 3. Each participant was asked to answer two questions.



For fisheries technical partners – Please give examples of successes and challenges from your experiences in the region: based on one of the project components, and for USP – How can this project best utilize regional universities to increase capacity development through trainings, symposiums, research or collaboration?

All panel participants were asked: based on your experience, what new or innovative ideas would be useful for small-scale tuna fisheries, fishers or communities in the Pacific? A summary of the panel responses for questions in provided in Table 6 on page 16.

Table 6: Summary of the responses from panel members to the questions.

PARTNER	RESPONSE TO QUESTIONS
USP	<ul style="list-style-type: none"> • Will strengthen collaborations with Japan universities; • would like to work towards a pool of trained Pacific Islanders. USP able to offer TVET courses (sustainable approaches, gender and human rights, business training); • potential for collaborations with existing PhD and Masters students; • ability to host symposiums (e.g. Pacific Island Conference) and provide avenues for public lectures (e.g. coops/associations telling their stories); and • data collected from this project can feed into USP courses (through 5 yearly course review).
Yamaha Motors	<ul style="list-style-type: none"> • ongoing challenge to strengthen in-country capacity through ToTs: ongoing step by step training and those trained often move on, so becomes time consuming; and • working on new technology (e.g. smart mobility – electric engines), however, Yamaha remain cautious as lives are at stake.
OFCF	<ul style="list-style-type: none"> • long term fisheries development assistance in the Pacific (> 30 years); • activities are dependent on national budgets; and • OFCF want to grow local counterparts.
Maritime New Zealand	<ul style="list-style-type: none"> • newcomer to the project; • expertise in grab bags and sea survival techniques; • OBM technician from New Zealand – training; • ongoing challenges of overload of aid in the Pacific, so appreciate to hear about priority areas; and • need to build a culture of maritime safety (both technical and professional judgement).
JICA	<ul style="list-style-type: none"> • long-term continuous effort (since 1970s) through training activities in human resource development; and • challenge is to have ongoing support from trained participants to apply/implement trainings (collaborations as a way forward).
SPC	<ul style="list-style-type: none"> • SPC success lies in the long-term engagement in the region; • ongoing challenge of maintaining training; • data collection is challenging (e.g. Fisheries Officers have conflicting workplans) – need to collect the bare minimum for FAD data; and • challenge for sustainable FAD programmes – how do we get there? Need to get youth into fishing properly, sustainably and safely to have future FAD fishers (not easy!).

PARTNER	RESPONSE TO QUESTIONS
WorldFish	<ul style="list-style-type: none"> • Timor data dash board has been a success, to be sustainable – things need to be home grown; and • better data doesn't mean better management – the challenge is to how we make data more relevant to fishers.
Partner's Innovative Ideas	<ul style="list-style-type: none"> • automated analytics (automated analysis of data); • natural FAD focus (traditional knowledge can be used to develop an eco-FAD); • tuna farming; • a mechanism to bring donors together to reduce overlap of activities in the region; • new processing technology to better utilize catches when there are market/value chain limitations; • improved boat designs to enable safe fishing; • bring back/capture/relearn traditional fishing knowledge; • online tool to calculate FAD rope lengths etc.; and • boat tracking systems.

Day 1 was then brought to a close by reminding participants of the agenda items for Day 2 and Alex Tilley requested participants to fill out questionnaire in preparation for his ICT session on Day 3.

3. DAY 2

The purpose of Day 2 was to focus in on the FAD component of the workplan, and the agenda for the day is presented in Table 7.

Table 7: Agenda and presented for Day 2 of the workshop.

AGENDA THEMES	AGENDA DETAIL	PRESENTER
Daily Introduction	Recap of Day 1	
FAD design and deployment	FADs in the Pacific - Setting the scene	Mr Lindsay Chapman
	FAD Design	Mr Ian Bertram
	Experiences from Vanuatu	Mr Takuma Takayama
	Experiences from Tonga	Mr Sione Mailau
	FAD Working Group/ Network	
Monitoring FADs	Monitoring Guidelines	Ms Joelle Albert
	TAILS	Mr Ian Bertram
National workplans	Component 1 workplans	Country group work
	FAD network discussion	

3.1 RECAP OF DAY 1

The morning session started with a recap of Day 1 and an opportunity for questions as follows:

- How will gender be addressed in the project? Think about gender issues in your workplans – cross-cutting issue e.g. safety at sea – women/children build awareness on safety at home, comes strongly into value-adding activities;
- Is there a plan to talk about fishers associations later on? Yes, this is associated with another project that will be implemented with this one. A workshop on this is planned for later in 2020;

- Clarify on what this project (fishers association) is about? The project will be doing a mapping exercise and surveys to find out who's developing fishers associations in selected countries to see who are the fishers groups, contacts, main objectives, what they are doing in-country, then each country can identify two groups to develop a roadmap or strategy for their coop/association. This project can help implement support to their coop/association activities; and
- There is a new project by JICA on SDG 14 to provide capacity to fisheries offices to help them monitor/report on SDG 14. FAO will be requesting a similar study in each of the countries as a start. Will keep everyone posted.

3.2 FADs – SETTING THE SCENE

The FAD sessions commenced with the FAO consultant, Mr Lindsay Chapman, presenting some background and history of anchored FADs in the Pacific, mainly in the early years from 1978 to 2010. In the five year period from 1978 to 1983, over 600 anchored FADs had been deployed across 19 Pacific Island countries and territories (PICTs) in the region. Around 400 of these were deployed in Fiji, Papua New Guinea and Solomon Islands for their national industrial pole-and-line fishery. Overall, 80 percent of the FADs were lost in less than 12 months. The aim at that time was to develop an anchored FAD design that would have a 2-year minimum lifespan, cost less than USD 4,000 (including deployment costs) and be able to be deployed from smaller vessels from 9-18m in length. During the 1980, PICTs continued to trial a range of buoy or float systems, from spherical buoys to spar buoys, bamboo rafts to an aluminium pontoon or catamaran. In the 1990s, there were two main buoy systems emerging and being promoted by SPC, the steel spar buoy and the "string of floats" or Indian Ocean design, as depicted in Figure 4.

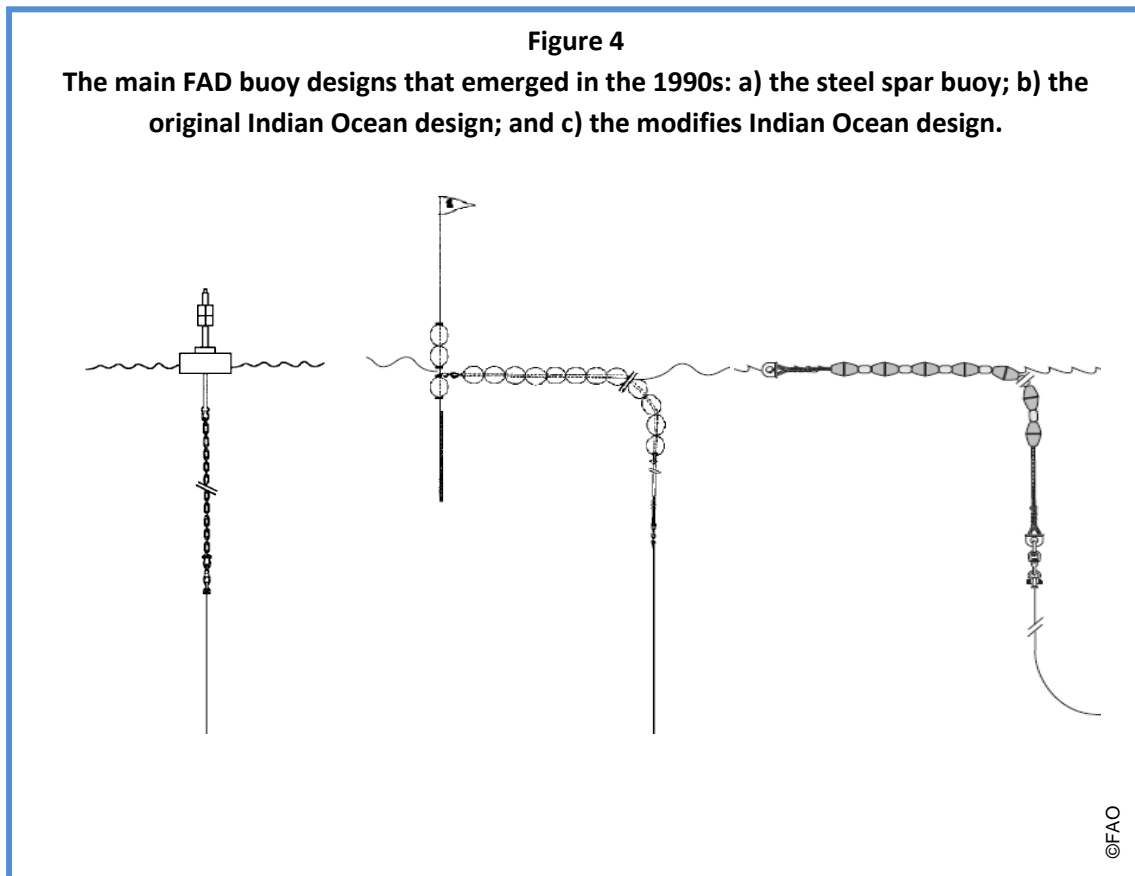
The main focus for an anchored FAD programme, was to use these as a management tool, to move fishing pressure away from heavily fished reef resources. The FADs also gave the potential to increase catches of tuna and reduce search time, resulting in reduced operating costs for the fishers. It also allowed mid-water fishing techniques to be used, such as vertical longlines and drop-stone to target the larger, deeper-swimming tunas that also aggregated around the FADs. There were also different theories as to how the FADs attracted tuna and other pelagic species, and these ranged from bait attraction as food for the tuna; fish behaviour, as some species gather around floating objects; meeting or congregating place, with fish gather in the evening and then foraging from there during the day and returning in the evening. Overall there is no clear answer, and there is much research underway to better understand how and why FADs work as they do.



a.

b.

c.



Attaining a minimum two-year lifespan for anchored FADs has in the most part remained elusive. There are reports of the odd FAD lasting 6 or 10 years, but the vast majority of anchored FADs are lost within two years, and many in less than 12 months. In some locations, vandalism is a main cause of FAD loss, however, most anchored FADs that are lost are not recovered, so the cause of the loss is not known. One of the biggest concerns for fisheries managers is the lack of catch and effort data that has been collected on FAD catches, so the true impact or success cannot be calculated. Instead, it is just anecdotal information that they work, and it is unclear how long donors will continue funding FADs without better evidence of their success.

The SPC checklist for a sustainable national artisanal anchored FAD programme was then presented briefly, as this allows countries to assess where their FAD programme is at. The checklist covers four main areas, capacity to undertake and run a FAD programme, management and governance structure to support a FAD programme, end-user engagement to form partnerships and collaborations with fishers, and funding including the need for the fisheries department to have an annual recurrent budget for FADs. It appears that most countries are working towards a sustainable anchored FAD programme, which has identified areas that this project can assist.

The following points were made by participants in the plenary discussion.

- Can some of the university students be used to assist with data collection and surveys? USP (Jokim) thinks this could be helpful, maybe have some kind of formal arrangement with Ministry like an MoU, etc.
- Should data be a part of a ministries duties, need an active ongoing data collection system in place?
- Funding – has to be lined up for each year (earlier in the year). Can the fishers be part of lobbying for this (would this be effective?) so it is not just coming from the Ministry officials. Do fishers have a strong voice at the national level to lobby minister, etc. directly?
- The national fisheries agencies have to be able to demonstrate the value of the FADs. Are the communities benefiting? Is there a multiplier effect? We need to show that it is a worthwhile investment.
- Good to understand who is supplying the FADs, where are the materials coming from? Can the supply companies be stakeholders in the discussion?

3.3 FAD DESIGN

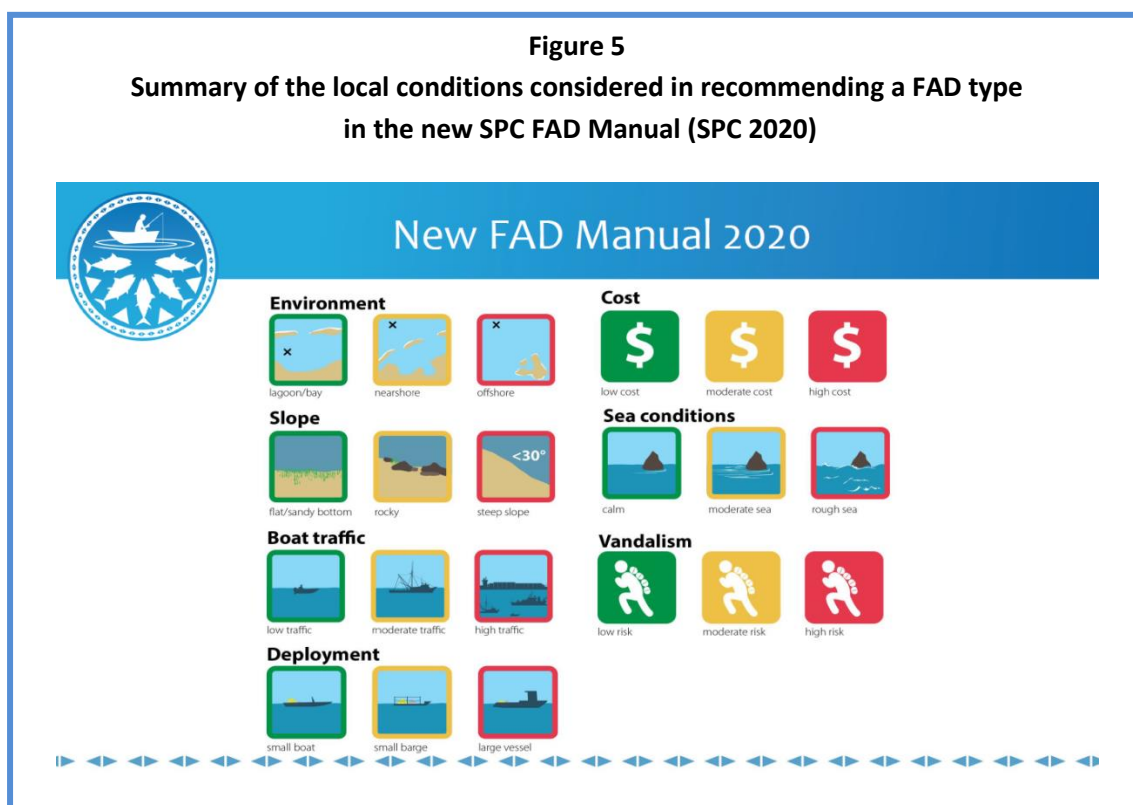
The next presentation was given by SPC's Mr Ian Bertram. He summarised SPC's involvement in FADs and a brief FAD history, complementing the presentation by Mr Lindsay Chapman described above. He then focused in on the 2020 FAD manual published by SPC. This manual updates the 2005 manual on FAD gear technology, designs and deployment methods for the Pacific Islands region. This requirement emerged from a regional FAD expert consultation held in 2016. The manual draws on experiences and lessons learn by FAD practitioners across the region, organisations, national and provincial governments, NGOs, fisher associations and communities.

The manual gives detail on six FAD types plus two examples of regional modifications. It advises on the most suitable FAD for a given situation based on environment, slope, boat traffic, method of deployment, cost, sea conditions, and propensity for vandalism (Figure 5).

The new FAD manual is available on line at:

<https://coastfish.spc.int/en/component/content/article/44-handbooks-a-manuals/511-manual-on-anchored-fish-aggregating-devices>.

Figure 5
Summary of the local conditions considered in recommending a FAD type
in the new SPC FAD Manual (SPC 2020)



©FAO

The following questions and points were made by participants and the presenter in the plenary discussion following the presentation:

- Elaborate more about maintenance of FADs? Do you need divers? This topic is in the SPC 2005 manual. Many FADs in the region are not underdoing enough maintenance. Some countries do underwater FAD maintenance (Cook Islands, Niue, French Polynesia), others not really. Typical check-ups including changing lights, removing tangled gear (hooks, lines) underwater etc.;
- How do you determine where to deploy a FAD? An important factor is the slope (flatter area is better so site surveys are important). Fishers will tell you where certain areas fish aggregate (e.g. Kona in Hawaii) – usually has to do with underwater features, so good to talk to the fishers;
- Re: the Australian FAD buoy design, the buoys are good as it also has GPS tracking;
- Re: vandalism, FAD materials cost money (valuable), so people take floats, ropes for other uses;
- Fiji case: conflict / competition between fishers and communities, such as divers and trollers, where divers sell more expensive fish than trollers, so divers cut the FADs. Think about clustering FADs and having a good talk with fishers; and

- If you have an electronic signature on the buoys, it could be a safety issue if the buoy breaks and drifts (someone follows it but it's not in the right place).

3.3.1 OKINAWA AND VANUATU EXPERIENCE

Mr Takuma Takayama of IC Net Limited provided an overview of Vanuatu's "Vatuika FAD" design. The Vatuika FAD was developed by the Vanuatu Fisheries Department in 2012 through the JICA Grace of the Sea project to help promote sustainable fisheries in coastal communities. Fisheries staff were trained in Okinawa, Japan and then modified and combined the SPC FAD design (Indian Ocean) and the JICA FAD Caribbean design to develop the Vatuika FAD design. The main concepts of the Vatuika FAD design is to ensure that they are easier to deploy, cheaper and more affordable than other designs (e.g. Okinawa FADs) and to bring the community together. A key modification of the Indian Ocean FAD for the Vatuika FAD is the use of sand bags as anchors to replace large and expensive cement blocks. One filled sandbag weighs 55kg, which is easier for small boats or planes to carry (10-12 bags per boat per FAD). The cost for a Vatuika FAD ranges from USD 750 (300m depth) to USD 1,300 (1,200m depth). Mr Takayama also shared some success stories on the Vatuika FAD, such as surviving category 5 Cyclone Pam in 2015 and engaging fishers in the management and monitoring of their FADs (e.g. collecting data on FAD catches). He also encouraged opportunities for south-south cooperation between Vanuatu and project countries to learn from Vanuatu's experiences.

The following questions and points were made by participants and the presenter in the plenary discussion following the presentation:

- How often do you go and check on your FADs for maintenance? Depends on communities. We advise fishers to go once a month and they have a maintenance logsheet for registered fishers. Once a FAD is deployed, a FAD committee is set up to be responsible for monitoring. There are fees for each fisher to pay to the committee for FAD maintenance;
- Can the sandbags be made locally? Originally they are imported from Japan. Now materials are available and sold locally (but supplied from Japan);
- FADs are deployed in areas suitable for fishers; and
- How effective is data collected on catches brought to the solar freezers (market)? Through the FAD committee, all fish caught on FADs must be reported or sold in the market so that the Fisheries Department receives that information. Some areas continue this, but some fishers are tired of collecting data, so need to discuss how to encourage fishers to collect data in future; and
- We have used different monitoring tools (excel sheets, TAILS, e-monitoring). Now we use TAILS, with >50 people collecting data on TAILS across Vanuatu.

3.3.2 NEARSHORE FADS IN TONGA

Mr Sione Mailau from the Tonga Ministry of Fisheries presented on the status of Tonga's nearshore FAD programme. The majority of FAD deployments so far are offered to communities who have designated Special Management Areas (communities who legally manage their own fishing areas) to provide alternative sources of food and help reduce fishing pressure on reefs. Mr Mailau explained the history of FAD deployments from 2014 to 2019 across the main island groups (the two Niuas, Vava'u, Ha'apai and Tongatapu), noting that of the 24 FADs deployed, the majority of them are still active today. He emphasized the importance of talking to fishers and understanding their real need for FADs, as this was the case for Ha'apai where fishers preferred to fish on their reefs. Training has been provided in several communities on the construction and deployment of FADs using different designs (Indian Ocean, submerged), while further work is needed on monitoring, as well as funding for more FADs in selected island groups. Mr Mailau's presentation ended with a short video of a FAD being deployed in the outer islands. After the video there was one question from plenary: Have you developed a video yet for communities on how to make/deploy FADs – Not yet.

Side note: While Tonga is not a country covered under the project, Tonga expressed interest to attend the workshop given the scope of the project. FAO and Tonga will further discuss how Tonga's priorities will be supported under a separate funding arrangement.

3.4 FAD MONITORING AND OUTCOMES FROM THE 2019 FAD THINK TANK

The FAD monitoring session was introduced by FAO consultant Dr Joelle Albert. FAD monitoring was contextualised by defining monitoring as 'the systematic process of collecting, analysing and using data to measure progress towards reaching a project or programmes objective'. The primary objectives of national FAD programmes in the region being:

- Increasing economic return for fishers;
- Enhancing food security; and
- Reducing pressure on coastal reef fisheries by shifting fishing effort.

The goal of the FAD think tank held in Noumea in 2019 was to develop a guideline for nearshore FAD monitoring in the Pacific Islands region, with the limitations of a lack of resources, busy multi-tasked schedules and being realistic to the regional context. Based on the three main FAD programme objectives, the guideline provides a generic framework for monitoring nearshore FADs from inputs, through to activities, short-term intended outcomes to longer-term outcomes. The guideline provides a *simple* (regionally relevant) mechanism for data collection with methods focused on semi-quantitative approaches (discussions, surveys with fishers/communities), building on existing standardised mechanisms/forms where available (e.g. FAD registry forms).

It was highlighted that while there is a lack of FAD data in the region, it is critical to ensure that data collected is fit for national FAD programme purpose (i.e. data collected will meet overarching national FAD programme objectives) and its intended use by governments, fisher associations/fishers.

The guideline is available on request from FAO or SPC. The guideline will be trialled under this project in one or several countries, any refinements made, and then published, hopefully by the end of 2020.

Mr Ian Bertram from SPC then gave a presentation on the SPC TAILS application. TAILS was described as an SPC mobile phone and tablet application which allows offline data entry, and is an alternative to old paper forms for collecting data. Collected landings data, vessel activity logs (for scaling) and more is entered into TAILS. It is designed for both FAD and non-FAD trips. TAILS is good for FAD data collection because it can record an extremely detailed FAD registry (depth, materials, position, construction etc.) and log and report on FAD catch vs non FAD catch. It is currently used in several sites for dedicated FAD monitoring and is free to use for SPC members.

TAILS is currently used by fisheries officers in 10 countries and TAILS landing data has catch history already in FAO project countries: Fiji (Kadavu only), Kiribati (Trial in 2019), Samoa (Alia fleet in Apia), Tuvalu (Commenced on 8 islands in 2019), Vanuatu (30 community monitors, extensive data).

Important steps for the FAO project and TAILS is that all new FADs should be registered in the TAILS database for existing collection programmes. There is potential before/after comparison available for new FAD locations on reef vs pelagic fishing effort. It is important to involve the SPC TAILS team in any future meetings. Note that countries own the TAILS data, so permission is required for access the data. In order to assist, SPC require funding for training and TAILS expansion.

The following questions and points were made by participants and the presenter in the plenary discussion following the presentation:

- more workshop participants have worked on logsheets than on TAILS. Only two people in the workshop have worked on TAILS;
- Kadavu fishers in Fiji collect data on TAILS, but cannot access it, they have to request this from government. Fishers should be able to access data as the data belongs to the country;
- communities in Vanuatu are given tablets to collect data on TAILS. Fisheries facilitates this;
- a country should already have a dashboard of the data they submit, to see how they are going themselves (that's the optimal). Something to be discussed during the TAILS workshop;
- Where does TAILS fit into the FAD network?;

- difficulty of collecting data in the field (fisheries department have limited resources). Vanuatu experience with fishers collecting data themselves is something good to learn from; and
- training on TAILS is intensive, keep this in mind.

3.5 MONITORING GROUP WORK

The presentations were followed by group work. The fishers talked about their monitoring needs in a separate group. The remaining participants separated into three mixed groups to address the following questions:

- How do you know if your FAD is working?
- What gaps do you have in monitoring now?
- What would you like to learn more about?
- What lessons do you have to share on monitoring?

The reporting back from this session is summarised here by group.

Fishers group:

- What is the role of fishers? For Palau, there is too much data/information requested from fishers to provide. For Samoa, fishers provide data using logsheets, so most fishers are sending data to the government. For Fiji (Kadavu), fisher associations provide data in logsheets and used in competitions to motivate the provision of data (fisher of the year).
- information submitted include: fishing gears, production, prices, CPUE etc.;
- a condition to provide data under their fishing license (e.g. for Samoa, Fiji), although it is not well enforced e.g. no penalty. This approach works well for RMI (Fishing Club);
- key information that fishers want to know:
 - FAD design;
 - more feedback needed on data collected. Some associations (e.g. Kadavu) have feedback every year during annual general meetings;
 - when is the best time to fish on a FAD;
 - be open to verbal communication (not just written ways) e.g. talanoa;
 - climate change impacts on fisheries;
 - meeting between fishers;
 - how much are people fishing on FADs vs inshore areas; and



- market access/prices info (e.g. value of fish).

Group 1:

- Vanuatu has reasonably good FAD and non-FAD data; Tonga and Kiribati do not have good production data. Tuvalu, Vanuatu and Kiribati do not have a good handle on FAD-caught fish and market information (supply and demand). RMI's FAD programme is ad hoc, so there are major data gaps, so relying on oral reports.
- Information required to know if a FAD is working – design, price of fish, gear type, fishing method, season, location of FAD, Depth of FAD, FAD production (# fishers, # boats, types of boats, market opportunities and information required on FAD maintenance.
- Would like to know more about – how can the data / information be translated to the community in a simple understandable format?; How can TAILS or other monitoring programmes be made simple for community fishers to become part of it and contribute?; How can information be matched and/or corroborate traditional knowledge?

Group 2:

- defined 'FAD working' as the FAD is effective and that it exists (in the water)?
- need scientific data, but also social data, (how communities react towards the FAD etc.);
- limited information in our current monitoring programme. Gaps include no economic, social or scientific data;
- would like to learn more about FAD monitoring plans, management plans and TAILS; and
- lessons – we need to have a monitoring plan that incorporates all feedback and data. Also noted the importance of securing funds to sustain monitoring programmes.

Group 3:

- defines 'FADs working' as being effective, the FAD's position, what fishers gain from FADs;
- look at comparing revenue of fishers vs cost of the FAD (good indicator of a FAD working) e.g. Kadavu – the revenue of fishers were higher than the cost of FADs;
- gaps in monitoring – fishing data, all data collected is landed catch (could be FAD or non-FAD catch);
- want to learn more about TAILS (need training); and
- lessons – accessibility of a FAD to fishers, income of fishers are very important to sustain.

3.6 NATIONAL WORKPLANS: FAD COMPONENT

An hour and a half was then set aside for each country to start to develop their Year 1 workplans for the FAD component. Participants were encouraged to start to identify sub-activities under the priority activities, to add in additional activities only if critical, and to identify which activities their country would tackle in Year 1. Resource people were on hand to assist if needed and if any additions or changes were made to the workplan priorities these were recorded and the files submitted to the FAO project team. Time was left on the last day for country representatives to progress and finalise their workplan priority activities and sub-activities under the FAD component.

3.7 FAD NETWORK DISCUSSIONS

The establishment of a FAD network was one of the regional activities that needed to be fleshed out to see what would be workable. For the final activity of the day, participants were divided into four groups to discuss and put down their thoughts on how this would work, looking at what, who, how, where and when for the establishment and operating of such a network group on FADs. The responses of the four groups were pinned on the wall for participants to examine and compare but were not otherwise presented back to plenary (they are recorded in Appendix 2).

The facilitator, workshop owners and resource people examined the sheets and felt that the ideas were still very broad and could potentially be dealt with in a range of forums. It was decided to hold another session on this on Day 4. A summary of the outcome is given under the Day 4 section.



4. DAY 3

The purpose of Day 3 was to focus in on the sea safety component of the workplan, and the agenda for the day is presented in Table 8.

Table 8: Agenda for day 3 with the presented for different sessions.

AGENDA THEMES	AGENDA DETAIL	PRESENTER
Daily introduction	Recap of Day 2	
ICT	Introduction to ICT opportunities	Dr Alex Tilley
	Group work on country ICT opportunities	
Safety at sea	Introduction to sea safety by Maritime New Zealand	Mr Tony Parr
	Group session on sea safety	Mr Robert Lee
	Yamaha boats and engines	Mr Motoki Watanabe
National workplans	Component 4 workplans	

4.1 RECAP OF DAY 2

The morning session started with a recap of Day 2 and an opportunity for questions as follows:

- There was strong interest by countries in FAD designs and what works best. Country examples from Vanuatu and Tonga highlight the different approaches and adaptations to FAD designs, both buoy systems and anchoring systems. New manual on FAD designs from SPC will assist countries with the possible designs that will best suit their situation;
- Monitoring catches and effort is still a big issue in most countries in general. Separating FAD associated catch from non-FAD associated catch is challenging, with TAILS and the community monitoring guideline being options to address this, with Vanuatu expanding their use of TAILS;
- How will a FAD working group work or function? Good discussions from group work, but no clear direction – will be discussed more later in the workshop. Scope for south-south

exchanges as part of this, as well as looking at who would be on the group? Also, what will the function of the group be?; and

- Initial discussions by country representatives have identified priority activities and some sub-activities for Component 1. Some new activities identified by some countries, with interest in other areas that will be discussed in days 3 and 4. Some countries completed a first draft, with this to be refined on the last day of the workshop. Good interaction and presentations by countries on their work so far for the FAD component.

4.2 INTRODUCTION TO ICT OPPORTUNITIES

Dr Alex Tilley from WorldFish gave a presentation to introduce a range of information and communication technology (ICT) opportunities. Alex noted that the relatively low awareness of potential and available ICTs amongst the participants from the 8-countries attending this workshop is common across the sector, irrespective of the region. The diverse, informal and geographically-isolated nature of small-scale fisheries (SSF), inhibit the development of home-grown technological solutions, and their proliferation and uptake due to a reliance on power and internet infrastructure (as exemplified in Pacific islands).

The ICT presentation included a brief introduction and explanation of what ICTs are, their expansion in recent years, a review of their uses in SSF and some specific case studies of ICTs from around the world. This included integrated vessel tracking and catch data system *PeskaAS* in Timor-Leste (WorldFish), the suite of apps produced to upgrade value chains and gather fisheries management data in the Western Cape, South Africa (Abalobi), an alternative livelihoods project for women fishers and traders in Bangladesh using mobile money, informal fisher networks in India, and blockchain for transaction trust in Ghana.

Following this brief introduction workshop participants were excited about the possibilities and eager to incorporate ICT elements into the project activities in their countries where possible. These focused primarily on the integration of vessel tracking with catch data, mechanisms to relay data back to fishers, and value chain upgrading through digital marketplace apps. Tracking of deployed FADs and fishing gear were prioritised secondarily, along with the production and mobile distribution of video tutorials for training and awareness raising programmes.

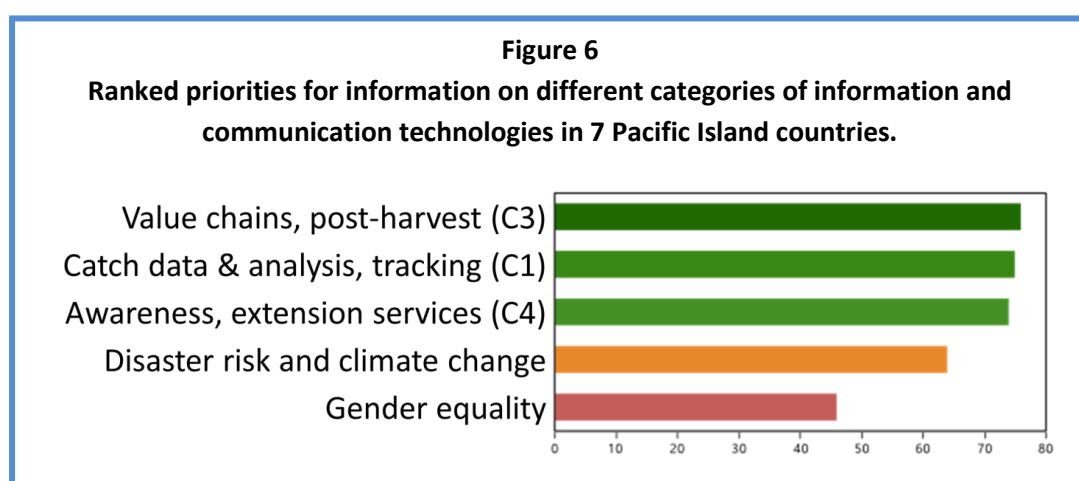
A short survey of nine questions was given to country representatives to fill out prior to the ICT session. The survey questions can be found in Appendix 3. For many of the questions, it was not expected that they should know precise statistics, the survey was carried out to merely gauge the experience of participants and their familiarity with ICTs in the context of SSF in their respective countries.



4.2.1 SURVEY RESULTS

A total of 15 completed survey responses were received from 7 countries (Fiji, Kiribati, Palau, RMI, Samoa, Tonga, Vanuatu).

1. All countries except Fiji & Tonga have dedicated ICT/Data officers in their fisheries ministries/departments.
2. 93 per cent (14) of participants own a smartphone
 - a. Only one person's phone was provided by their work
 - b. However, 64 per cent used their phones for work. The primary uses are Fish ID apps, Communications (email) for work and with fishers.
3. Palau had the highest estimated per cent of fishers with smartphones, Fiji had the lowest.
4. Vanuatu had highest estimated per cent mobile network coverage, Fiji and Samoa had the lowest.
5. Existence of ICT strategies was inconclusive – there were yes and no reported from most countries.
6. Active ICT projects were reported from Fiji, Kiribati, Palau and Vanuatu in: Information services, weather advisories, e-logbook, fisheries solar energy and market data.
7. All countries reported that fishers were required to submit data – usually by paper.
8. Respondents ranked value chains and post-harvest technologies as the category of ICTs where there was the greatest need for information in their countries, however, the top three were very evenly distributed (see Figure 6). Gender equality and climate change were significantly lower in priority.
9. 47 per cent of respondents (7) women were more likely to own a smartphone than a man in their countries because *“they are faster learners, need it to keep in contact with family, and for Facebook”* The remainder of respondents believed women were less or equally as likely to own a smartphone.



Some of the questions following the presentation were:

1. What is the cost of the tracking system (Answer: ~USD 600 per unit for 2 years, including data service).
2. How long does the battery last on the vessel tracker? (Answer: It is solar-powered, so at least 4 years barring any damages/malfunctions).
3. How does the vessel tracker send the data? (Answer: mobile networks, so it stores location data until it re-enters an area of network coverage).
4. Can the vessel distinguish between types of fishing – i.e. when the vessel fishes at a FAD and then goes to fish in another location? (The high resolution tracks will identify where fishing takes place using pattern recognition algorithms, however, unless catch data distinguishes between the catch from each of these habitats, there is no way to attribute catch to different habitats – or gears for that matter).
5. How reliable are the vessel trackers – i.e. how many faulty ones do you get out of a batch? (Answer: In my experience ~1/100 do not work as expected. However, Pelagic Data Systems checks all units prior to shipping, and will also replace any non-functional units free of charge).

Participants then broke into groups by their respective countries. They were asked to discuss amongst themselves and come up with answers to the following questions:

1. If there were no practical constraints, what ICTs would we develop in our country?
2. Under which components of this project?
3. Why/how would an ICT help?
4. What resources would we need?
5. Who might we partner with?

The responses to these questions are summarized in Table 9.

Table 9: Summary of responses to the five questions for possible ICT development by country.

PROJECT COUNTRY	ICT AREA OF INTEREST TO EXPLORE
Samoa	Vessel tracking of small-scale vessels – currently only VMS in commercial fisheries.
	Also an aid to enforcement to act against IUU fishing.
	They also require training in the collection, use and analysis of electronic catch documentation [Automated analytics].

PROJECT COUNTRY	ICT AREA OF INTEREST TO EXPLORE
Fiji	Small-scale vessel tracking and automated analytics of digital catch data, FAD tracking.
	Training support. Partner with USP, Vodafone Fiji, mCel and others.
	Digital marketplace and traceability to improve fisher cooperatives/ associations link to new/high-value markets.
Palau	Vessel tracking to evaluate the effectiveness and compliance with new zonation in Palau (Palau Marine Sanctuary Act), as well as Safety at Sea elements for fishers.
	Training in ICTs and data.
Tuvalu	Producing Training videos.
	TAILS data training and use.
Vanuatu	It was mentioned that 14 Million Vatu (USD 122,500) has already been budgeted for the rollout of the TAILS data system to 56 sites, but to complement this they would like assistance in developing/using ICTs to relay data and information back to fishers and Coops/associations and the National Fishers Group, to disseminate within their networks.
	[Funding is needed for awareness-raising campaigns about data collection and exchanges between associations in the country and region.]
Kiribati	Various databases as well as TAILS are either in place or underway, but they are in need of a central database system to combine all these, and a method to get data back to fishing communities.
	Vessel tracking is a new priority in Kiribati. Also gear tags and FAD tracking.
	A potential funding mechanism could be similar to the <i>Fishing gear revolving fund</i> in Kiribati.
	ICT Training – data analysis training – Technical advice.
PROJECT COUNTRY	ICT AREA OF INTEREST TO EXPLORE
Tonga	Video tutorials development on sea safety, fishing technologies.
	Automated Analytics dashboard for FAD data from TAILS.
RMI	Vessel tracking - Safety at sea.

4.2.2 INCENTIVES FOR FISHER DATA COLLECTION AND RELAYING INFORMATION BACK TO FISHERS

An ongoing theme and challenge in efforts to effectively gather data on SSF, is the “value proposition” or incentive for fishers to provide data on their fishing trips and catches, and to continue to do so. Questionnaires and surveys take the time of fishers at the end of a fishing trip when they need to gather, process, preserve, transport, sell or trade their fish that may have already been in the sun too long. Hence, there was an important and timely discussion and ongoing emphasis during the workshop on the need to relay information back to the fishers, and a specific focus group with fishers on what that information should be.

Fishers mentioned the following information and resources would be useful to them from fisheries officers and departments:

- *where the best catch is* - Spatial (Area) differences in catch rates;
- seasonal differences in where fish are and how much - Seasonal species abundance variations;
- *how much we are spending* - Fisheries expenditure (totals on fuel, gear, boat, maintenance);
- cost-benefit, rates of return (by gear/species/habitat?);
- new marine science insights on species, ecology;
- up to date market information;
- how to make products from the fish to sell - Value-added processing;
- tell us what species are worth more in the market that we can catch - ID high value species/products; and
- how good are our catches on the FAD and how much are we fishing there – FAD CPUE and effort.

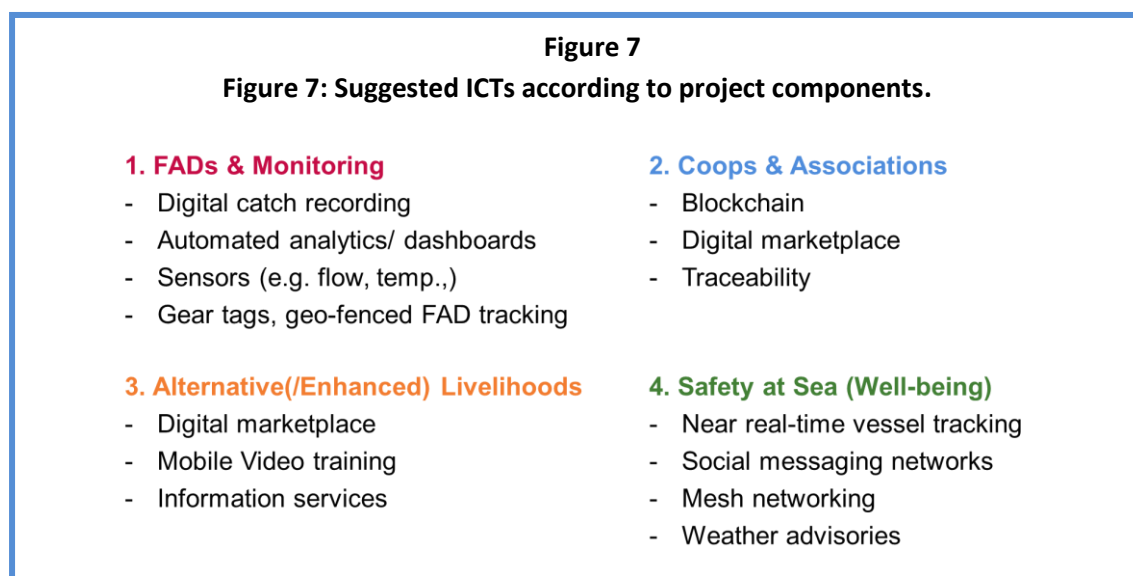
4.2.3 AN IDEAL SSF DATA PIPELINE

To assist participants in seeing the potential of ICTs as a mechanism to get information back to fishers, the following hypothetical SSF data pipeline scenario was described: Fishers record the details of their own fishing trips (gear type, # fishers, duration) and catches (species, lengths), market data (sale price, per cent sold vs. eaten) through an app on their own phone or tablet. If the fisher’s phone is GPS enabled, the fisher could even record location specific catch data while out at sea (perhaps by taking a photo of the fish once landed on the boat). This could be used to generate maps of catch rates over time throughout their fishing activity area.

Within this app, after submitting sufficient entries, it would display the various summary statistics and trends illustrating their relative fishing success over time in metrics of their choice,

such as total catch per trip/over time, CPUE per trip/over time, expenses vs. income. As data were gathered across seasons and years, their personal fishing success and economic yield in terms of *effort* and income could be simply displayed to assist them make decisions about their fishing behaviour. A useful integration would be that fishers can post this catch on a digital marketplace to allow private (higher value) sales than those offered by town markets and cooperatives.

This app would also allow automatic uploads of the data to the government’s cloud database, where the data would be stored and analysed to inform larger scale management decisions, and from there those are pulled regionally to SPC and others for meta-analysis and higher level analysis and regional recommendations. In turn, the fisher would receive updates and notifications from their fisheries department regarding new rules, restrictions, events, license renewals. This scenario was of interest to participants, and SPC (Mr Ian Bertram) expressed that they will discuss the idea with the developer of TAILS to consider opportunities and feasibility. Based on the discussions a matrix of suggested ICTs was prepared by Dr Alex Tilley for the project to explore further (Figure 7).



The main points from the discussion that followed the presentation were:

- In Vanuatu SPC TAILS is currently working well and government is working to expand (through the provision of funds), current constraint is how the information can be made available to community/fishers (automated analytics at the fisher level required).
- In Kiribati various databases exist in coastal fisheries division (including TAILS), require centralized database between ministries. Need data to be able to be fed back into communities.

- Tonga requires training in the use of smartphones;
- How can vessel monitoring be used in sea safety? Who is going to monitor/respond?
- All countries require technical assistance, capacity building (e.g. training local experts) and funding to implement, potential for the exchange of information, knowledge and skills from other partners, countries and regions in this area.
- There is an overarching drive towards ICT in the Pacific.
- Opportunity exists for fisher led data collection and management (managing their own data) and dashboard systems. The data can be sent from fishers to local government which are then sent to national governments for compilation and summary.

4.3 MARITIME NEW ZEALAND

The session started with a presentation from Mr Tony Parr, from the Pacific Marine Safety Programme (PMSP) in New Zealand. This programme started in 2012 and worked with three countries, and this has expanded to 7 countries (American Samoa, Cook Islands, Niue, Norfolk Island, Tokelau, Tonga and Samoa) that are enclosed in their search and rescue region, which is the third largest in the world. Support is also provided to Kiribati and Tuvalu. The PMSP keeps watch over this area 24 hours a day, seven days a week on VHF channel 16 and any Emergency Position Indicating Radio Beacons (EPIRBs) or Personal Locator Beacons (PLBs) that are activated in their search area. From January 2015 to January 2020 (5 years), 48 fishers were reported missing, and very few were a result of EPIRB/PLB activation. One success story from Tuvalu was the activation of an EPIRB/PLB, with the signal received at PMSP, reported to Tuvalu and the rescue undertaken, with the operation taking five hours in total.

The PMSP aims to build capacity and awareness of maritime safety practices and technologies, with the long-term goal of reducing the risk of loss of life at sea. The work of PMSP in the Pacific is delivered in four ways:

1. Working collaboratively with Pacific Governments to tailor risk-based, evidence-driven programmes for each country. An example of this was the discussions in Tokelau on what they needed in a sea safety grab bag, and agreeing on this and providing 30 per atoll.
2. A wrap-around approach is used to ensure the sustainable and successful implementation of activities. This includes the maintenance and refurbishment of equipment, with an example being the rebuilding of a 60m high tower in Kiribati, with a light beacon on top that can be seen from around 20 nautical miles away, and a VHF radio antenna that has expanded coverage to a 40 nautical mile range.
3. The provision of technical expertise using New Zealand contractors, trainers and organisations. Some examples of this were the undertaking of vessel surveys in Kiribati,



providing swimming lessons to children in Kiribati and training in outboard motor repair and maintenance in Tokelau.

4. The use of maritime safety ambassadors and local champions for sea safety. An example of this was in Niue; the survivor from a small boat that had drifted for some time told his story to others to raise awareness.

At the end of this presentation there were several questions from participants:

- What is the cost of deploying a P3 search and rescue plane? This was usually a one week operation (12 hours search time per day) and very expensive as it covers fuel, the plane, air crew etc. Despite the high cost, a rescue will always be attempted.
- The contents of the “mini” grab bag: EPIRB or PLB, life jacket (per person), VHF radio and a battery-powered LED light. Total cost of a grab bag is around NZD 1,000. There should be one grab bag per boat.
- Could a vessel tracking system be monitored or read through the PMSP monitoring system? No, not possible, only EPIRBs/PLBs as each is registered. A vessel is also not considered as safety equipment or a tool.
- Is there a solar-powered EPIRB available? There was nothing at present, but possibly in the future. EPIRBs have a 5-year battery life and the battery can be changed, whereas the PLB battery life is 3-5 years, and then the whole unit needs to be replaced. PLB’s are associated with a person, while an EPIRB is registered to a boat and more expensive.

4.4 GROUP SESSION ON SEA SAFETY

The next session started with the presenter, Mr Robert Lee, asking a question of the participants: “*Who is responsible for sea safety?*” The response from participants provided a list as follows: each person; fishermen themselves; Maritime New Zealand/Maritime Departments; manufacturers of sea safety equipment; captains of vessels; Ministry of Transport; owners of vessels; family members; fisher associations; Fisheries Ministry and Department; Media; Ambassadors; and village heads/head of community. The participants were then put in country groups and asked to identify the “sea safety issues faced in-country, experiences and problems” and put each idea on a separate card. The cards were then sorted into seven areas as presented in Table 10. Following this, the participants in the same country groups were asked to look at possible solutions or actions to address the issues that had been identified, and this too is presented in Table 10.

Table 10: Summary from group discussions covering both in-country sea safety issues, experiences and problems, and possible solutions or actions to address these issues.

SEA SAFETY ISSUE	EXPERIENCES AND PROBLEMS	POSSIBLE SOLUTIONS OR ACTIONS TO ADDRESS ISSUES
Training	<ul style="list-style-type: none"> • no regional courses/training on sea safety; • few experienced engine (outboard) mechanics/ fabricators (fibreglass); • Maritime Safety Authority of Fiji training too centralised – need to decentralise operation (Fiji); • lack of proper training for boating safety; • lack of training of sea safety; • lack of training on sea safety equipment; and • not enough safety training for fishers (National level). 	<ul style="list-style-type: none"> • training needs identified for sea safety; • develop/review of safety course for Alia fishers in collaboration with Maritime Training in Samoa and Maritime New Zealand; • review local training programme and support for fishers to upgrade or obtain necessary qualifications in Samoa; • sea safety training; • support from SPC and Maritime New Zealand for sea safety training; • training in boat safety and equipment use; • establish regular training for sea safety; • training or workshop for fishers upgrading their knowledge on outboard engine repair and maintenance; and • train the trainers on outboard motor repairs for fisheries staff and fisher association members.
Lack of safety/ communications equipment:	<ul style="list-style-type: none"> • lack of safety grab bags; • no local supplier in Vanuatu; • proper safety tools don't exist locally; • lack or no safety equipment for small fishing boats (e.g. EPIRBs, VHF radio); • lack of safety equipment; • lack of communication equipment; • no safety checklist ; • no safety equipment on-board; • No supplier for safety equipment; • break-down – communications; • expensive Safety equipment; • lack of safety equipment and too expensive; • not affordable – cost of safety equipment; • lack of safety equipment and technology for fishers – remote islands (Fiji); • no safety equipment on-board; 	<ul style="list-style-type: none"> • integrate grab bag requirements into fisher/ Coop membership – one grab bag per boat; • make available and affordable safety equipment to fishers; • support for sea safety equipment revolving fund; and • Establish a funding mechanism (Government, donors) for sea safety equipment.

SEA SAFETY ISSUE	EXPERIENCES AND PROBLEMS	POSSIBLE SOLUTIONS OR ACTIONS TO ADDRESS ISSUES
Lack of awareness/ignorance	<ul style="list-style-type: none"> • lack of awareness (Fiji); • lack of compliance to regulations; • competition amongst fishers; • ignorance; • attitude – lack of compliance (Fiji); • stubbornness of fishers; • lack of understanding on using sea safety or grab bags; • lack of seamanship at sea; • lack of awareness; • safety is not the priority – boat owners. 	<ul style="list-style-type: none"> • put in place awareness raising for artisanal fishers; • strengthen awareness on sea safety; • include safety training/champions in fisher/coop training;(church/provincial meetings) • lack of awareness needs Social Media – public information; • establish regular awareness programmes; and • awareness programme on sea safety for artisanal fishers and interested community members.
Access to weather information	<ul style="list-style-type: none"> • losing sea fairing and weather traditional knowledge (Fiji); • lack of weather information; and • check the weather before fishing. 	<ul style="list-style-type: none"> • access weather information from NOAA or any available weather bureau; • proper weather information through different ways.
Outboard engine problems	<ul style="list-style-type: none"> • outboard engine problems (old outboard) lead to drifting; • lack of maintenance of outboard engine – engine problems; • lack of capacity in outboard engine troubleshooting; and • poor fuel quality. 	<ul style="list-style-type: none"> • explore hybrid boat designs – outboard motor with sails; and • provide training on regular maintenance of outboard motors.
Legislation, Enforcement coordination	<ul style="list-style-type: none"> • lack of buoys installed; • Maritime Safety Authority of Fiji/ Law (need for) coordination with fisheries/fisher associations and local authorities; • lack of collaboration between; Vanuatu Fisheries Department and Maritime wing and partners • lack of enforcement of sea safety by local fishers; • lack policy/strategy to address safety concerns; • outdated domestic watercraft regulations; and • lack compliance and enforcement. 	<ul style="list-style-type: none"> • develop standard operation procedures for small scale fishing boat registration and monitoring; • increase enforcement for non-compliance; • to put in place Maritime Safety Policy; • strengthen coordination and collaboration between relevant stakeholders (e.g. Vanuatu Fisheries Department, Office or the Maritime Regulator, fisher associations, provincial authority etc.); • coordination among key Ministries and Agencies; and • pass legislation.

SEA SAFETY ISSUE	EXPERIENCES AND PROBLEMS	POSSIBLE SOLUTIONS OR ACTIONS TO ADDRESS ISSUES
	<ul style="list-style-type: none"> • legislation requirement (legislation gap) – small boats under 11 m not included in legislation; • limited support from National Government; • lack of safe operating procedures for implementing safety standards; • lack safety certification of local vessels; • no enforcement of regulations; • poor marine safety enforcement; and • lack of boat safety enforcement – small boats. 	<ul style="list-style-type: none"> • support to ICT in FAD users tracking to improve safety and monitoring; and • review legislation to identify gaps, re draft and enforce.
Unqualified captains	<ul style="list-style-type: none"> • lack of qualified captains; and • unqualified operators – risk takers. 	Nil

4.5 YAMAHA MOTORS PRESENTATION

The next presentation was made by Mr Motoki Watanabe from Yamaha Motors in Japan.

Yamaha is a partner to the project. In summary Mr Watanabe's presentation covered:

- Yamaha Motors emerged from Yamaha in 1955 (motorcycles, boats, engines, watercraft, bikes etc.).
- largest boat manufacturer in Japan: commercial fishing boats, utility, pleasure, rescue, patrol boat, fishing cruiser etc;
- objectives: promotion of safe and quality boats, package sales (boat + engine), technical transfer (building capacity);
- partnership factory in Palau (building boats);
- example project: Senegal fishing canoe modernisation – shifting people from traditional wooden canoe to modern canoe with a focus to reduce maritime accidents and protect forest resources:
 - boat designs established through field survey and discussions with local fishing, tested in country for their safety, practicality, use, cost effectiveness; and

- few other companies available locally to ensure safe vessels are developed.
- 21 Yamaha distributors in the region.
- blue economy concept: navigation safety – there is no answer to what boat is safest;
- boat safety is dependent on:
 - who you are, what you aim is? Transporter/fisher;
 - environment you are surrounded by;
 - how you care for and/or maintaining it; and
 - practicality and time state.
- Decision making for boat/engine selection (check list):
 - purpose – operating area (nearshore/offshore) – prioritised needs – environment (clean fuel, mechanic, storage, ongoing costs) – other factors (culture/religion); and
 - dictates – type of boat, size, deck layout/dryness. Passenger capacity, propulsion type, additional features.
- Periodical maintenance and pre-operation check are essential factors for safety.
- common Pacific package: fiberglass boat and 2-stroke OBM (stability, multipurpose, simplicity, durability, portability);
- 2-stroke vs 4-stroke OBMs: both have advantages and disadvantages (but various on the conditions and environment) – engine and boat, need to ensure they are matched (weight etc.);
- oil disposal as a part of maintenance is a critical consideration;
- safety and maintenance: training opportunities (Yamaha Training Academy) for local partners and field mechanics; service campaigns with customers to demonstrate maintenance;
- new technologies: clean propulsion (battery engines) – limited practical products currently available (auxiliary engines (not suitable to Pacific environments); and
- Yamaha know that their boats and engines are used for FAD deployments, but what is needed from Yamaha?

The following points were made by participants in a plenary discussion:

- Is there an ability to put modifications to existing boats (e.g. crane, strengthening gunnel)? The issue is to make a copy of the mould. Easy to lift side walls, or put a hole. Inbuilt safety and ice box modifications possible.
- Are boats built to Japanese standards or international standards?
- There are issues associated with international second-hand vessels.
- 12 volt adapters on larger engines 40hp + to enable some devices to be powered.
- price difference in 2/4stroke 40hp: (40 per cent more costly for 4 stroke; fuel 30 per cent less fuel consumption);
- Yamaha plans to collect old products for recycling – no system yet in place – although partners are recycling the engines for resale;
- Can Yamaha engines be sold with a boat safety kit?
- Caribbean incentive programme:
 - duty free fuel/engines and fishing gear, but vessel must be registered and licensed;
 - get your licence, need safety equipment and training (e.g. VHF);
 - need registration for a fishing licence;
 - need to provide data to get the duty etc.; and
 - duty paid end of year.

4.6 NATIONAL WORKPLANS: SEA SAFETY COMPONENT

The final session for the day was country group work so that countries could focus on their sea safety priorities. An hour and a half was then set aside for each country to start to develop their Year 1 workplans for the sea safety component. Participants were encouraged to start to identify sub-activities under the priority activities, to add in additional activities only if critical, and to identify which activities their country would tackle in Year 1. Resource people were on hand to assist if needed and if any additions or changes were made to the workplan priorities these were recorded and the files submitted to the FAO project team. Time was left on the last day for country representatives to progress and finalise their workplan priority activities and sub-activities under the sea safety component, the same as the FAD component. At the end of the group work session, there was a short report back by countries with the following comments:

Samoa: They had similar issues and possible solutions to other countries, and they would need a needs assessment and then training in sea safety.

Palau: They did not have a sea safety priority activity (currently all activities ranked low). However, they prioritised an existing low priority activity for an awareness raising programme for fishers and others, with training materials needing to be produced, possibly with SPC assistance.

Fiji: They identified several areas given the lack of sea safety and equipment, and they wanted to strengthen this through the fisher associations/coops. They were also looking at sea safety training to be included with their FAD training, and looking at the availability of sea safety equipment and/or grab bags. They were also interested in sail propulsion for sea safety as a back-up to outboard motors if they fail.

Kiribati: They had several new ideas based on the days' presentations and discussion. The first was to support a revolving fund for sea safety equipment, and the second was support ICT needs for vessel tracking of small craft.

Marshall Islands: They have new sea safety Regulations that have recently come into force, so they want to develop a sea safety awareness campaign and coordinate this with stakeholders including the development of materials. In addition, they would like to develop a sea safety curriculum and have this as part of training of local fishers to upgrade their qualifications. It was also noted that there may need to be some modifications to these for women, so including a gender perspective.

Tuvalu: They were happy with their three priorities, with the main focus on support for training in the repair and maintenance of outboard motors.

Vanuatu: They were continuing with their two activities, training on sea safety for small craft operators and having sea safety equipment at an affordable price. They also added a new activity, to review a sea safety training course in collaboration with others (possibly through a MoU) and include port registration and licensing in the process.

Vanuatu also asked if the Fisheries Officers Course that used to be conducted by Nelson Polytech in New Zealand and SPC could be revived, as this was a very good course for new fisheries officers to undertake.

5. DAY 4 [HALF DAY]

The purpose of Day 4, which was a half day, was to focus on the finalization of national workplans for Outcomes 1&4 FAD, and the agenda for the day is presented in Table 11.

Table 11: Agenda items and presenters for the last day of the workshop

AGENDA THEMES	AGENDA DETAIL	PRESENTER
Daily Introduction	Recap of Day 3	
Revisiting the FAD Working Group/ Network	Presentation on a regional platform for FAD practitioners	Mr Ian Bertram
	National expertise to share	Group work
	Sharing the Caribbean experience	Ms Jessica Sanders
National workplans	Review and complete Component 1 and 4 workplans	Country groups
Next steps	FAO presentation	Ms Jessica Sanders
Workshop wrap up	Revisit Expectations	Facilitator
	Participant reflections	Facilitator
	Workshop close	

5.1 RECAP OF DAY 3

The morning session started with a recap of Day 3 and an opportunity for questions as follows:

- Strong interest amongst countries on the ICT initiatives presented by WorldFish. Several countries expressed interest in the vessel tracking system for small-scale fisheries. Questions around cost and reliability of the vessel tracking units on vessels, and were they “tamper-proof”. Several countries indicated they would like to trial such systems in their country.
- Sea safety is a major issue for all countries. Some countries have regulations in place, often not enforced, while other countries are developing regulations for small craft. Some success stories with the use of grab bags in Tuvalu. A lot of interest in making sea safety equipment available at affordable prices for small-scale fishers. Many barriers or issues to overcome to have an effective sea safety programme at the country level, and a need for awareness raising at all levels.
- Partnerships are possible with different organisations. PMSA in New Zealand is already assisting and working with countries on sea safety. Yamaha Motors are interested in assisting with outboard motor repair workshops and training, as several countries raised this as an issue for them.

- Countries worked on their priority activities with sub-activities under Outcome 4 on sea safety. Good exchanges and discussions between countries as possible workplan activities were drafted.

5.2 REVISITING THE FAD NETWORK

The ideas that had been put forward for a FAD Network on Day 1 were re-examined. A small group of countries worked with SPC to further refine this into a workable way forward, and this was presented in plenary. The concept was discussed and agreed that this was a good way forward, and this is presented in Table 12. The discussion also explored the best platform to use for communication, and it was felt the Facebook Messenger could be a good starting point as many of the participants were already using this. Other platforms such as SLACK could be explored, as this is used by SPC and the countries in the offshore tuna fishery, as a longer-term solution.

Table 12: Summary of group work on establishing a FAD networking group for Regional Activity 1.1.4 – establishing a FAD network between the 7+ participating countries with annual meeting to discuss FAD experiences.

ITEM	AGREED OUTCOME
What is the network for?	An <i>informal</i> network to discuss FAD issues, technologies, new ideas, queries, lessons learnt and opportunities (e.g. South-South exchanges), including FAD fishing technology and sea safety.
Who is part of the network?	<ul style="list-style-type: none"> • national FAD practitioners, those building, deploying, maintenance FADs from project countries; • practitioners from non-project countries to be included on a case-by-case basis; and • regional FAD partners: FAO, SPC, JICA, OFCF, WorldFish.
How will the network operate?	<ul style="list-style-type: none"> • online group chat (e.g. messenger etc.) which may need an account. WorldFish / FAO / SPC to set this up and assess best platform to use, both short-term and long-term; • develop a simple terms of reference for the chat group: rules, communication, adding people to the network group etc.; and • how to assist implement South-South approach in both project and non-project countries.
Where to meet?	<ul style="list-style-type: none"> • home-based for virtual communication on agreed platform; and • venue for meeting to be decided, and possibly linked to another meeting to reduce costs.
When to meet?	<ul style="list-style-type: none"> • virtual chat using agreed platform – see “how” above; and • could have a meeting towards the end of 2020. Agenda to be discuss in the chat forum.

5.3 NATIONAL EXPERTISE TO SHARE

Following on from the discussions to finalise the agreed approach of the FAD networking group, countries were asked to break into their national groups and discuss what area or skills they had in their country that could be shared with other countries (technical expertise, technology, capacity etc.) and if they had time, to identify skills they knew they could source from others. Most groups did not get to this question. However the known regional expertise of Yamaha for boat design and Maritime New Zealand for safety at sea training was identified. Table 13 summarises the inputs from each of the countries from the country group work. Note that Tonga, although not a part of the current project, has been included in Table 13 given they are likely to join the project through a different funding stream later in 2020.

Table 13: Skills that project countries have to share with others.

	Vanuatu	Tonga	RMI	Fiji	Samoa	Palau	Kiribati	Tuvalu
FAD design, construction, deployment, maintenance	Vatuika FAD	Surface and subsurface		Fiji design Buoyancy and weight calculation knowledge	Mooring and rigging	Mooring and rigging	FAD construction, deployment	Lizard FAD
FAD site selection		GPS Echo sounder use		GPS Echo sounder use				
FAD fishing techniques	JICA dropline Simple vertical longline Mini longline	Vertical longlining		Vertical long line Trolling Deep snapper fishing	Bottom fishing Trolling Jigging	Bottom fishing Trolling Jigging	Drop-stone DBF method	Flying fish (by hand) Bottom fishing
FAD tourism						Sport fishing (tag and release)	Pleasure fishing guide	Jigging
Fishing gear		Net mending and net hanging	Access to affordable, quality gear (share vendor information) Local fishing lure maker (trolling)					
Fisher training	Tails ToT	ToT (deployment, maintenance)		ToT (deployment)			FAD construction, deployment	Sea safety (e.g. grab bag use)
Post-harvest technologies			Jerky, sundried, Smoked, salted				On board fish handling	Fish bottling Smoking
Skills			Local boat builder Canoe building project		Skills			Local boat builder Canoe building project
Engines repair					Engines repair			
Livelihoods					Livelihoods			
Ways of working with communities				FLMMA approach Association formation at community level	Ways of working with communities			

Following the country reporting back to plenary, there was some discussion and the main points were:

- Samoa was interested in the fishing of flying fish in Tuvalu and was keen to get assistance in this area, possibly through a south-south exchange.
- Vanuatu is interested in the value-adding programme, particularly after disasters and the importation of tuna to address the food security.
- Kiribati and Tuvalu are also looking for expertise on how fish caught from around FADs can be used in value-adding activities. In Tuvalu, reef fish can be used, but mostly gutted and filleted before bottling in sweet chilli/tomato.
- In Tuvalu, bottled fish is currently used at the household level to enable fish consumption during bad weather, but they are looking to expand this to markets as well. Once the bottle is opened, the fish needs to be consumed. Smoked fish can last 2-3 years.

5.4 REVIEW AND COMPLETE COMPONENT 1 AND 4 WORKPLANS

Participants had another hour to work on their individual country workplans on FADs and sea safety from Day 2 and Day 3. To do this, the red/top priority activities on FADs and sea safety needed a list sub-activities for each, with propose timing in year 1 by quarter (if it is an activity proposed for year 1). All completed workplans were to be emailed back to Mele and Jessica by the end of the workshop. These were then compiled and are presented as follows:

- Appendix 4 presents the workplans for FAD activities (Outcome 1) by country.
- Appendix 5 presents the workplans for sea safety activities (Outcome 4) by country.
- Appendix 6 presents the workplan for regional activities.

5.5 FAO PRESENTATION

Ms Jessica Sanders then presented the next steps for the project, and these are presented in Table 14.

Table 14: Next steps for the project.

What	National level	Regional level
Identify national focal point	Next week	FAO to send out request
Identifying national support Where should they be based National salary scale Hiring process	In coming weeks	Country focal points to work with Joy
Planning initial activities Reviewing first year work plans and working with national focal points to progress first activities	March-April	FAO project management team Focal point
Regional meeting on fisher coops/associations	May (TBD)	Fisher association reps, project focal points
FAD network (online platform)	Feb-March	FAO, SPC, WorldFish

5.6 WORKSHOP WRAP-UP

To close the workshop, the facilitator revisited the initial expectations to confirm that the expected topics had been addressed. There was agreement that expectations had been met. Two topics that participants had identified at the start: Monitoring and Evaluation of the project and how gender would be addressed were not specifically addressed as part of the workshop. Ms Jessica Sanders explained that both of these parts of the project would be addressed in more detail with the necessary resourcing and/or strategies once the technical team leader has been appointed. Countries were encouraged to think about opportunities for gender to be incorporated in their national activities. As a cross cutting theme for the project, the project aims to do some higher level work as well.

The workshop closed at 1pm with a round the room opportunity for a short reflection from the participants.

APPENDIX 1: LIST OF PARTICIPANTS

IN ALPHABETICAL ORDER:

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Republic of Marshall Islands

Amos George

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APPENDIX 2: DETAIL OF GROUP WORK ON REGIONAL ACTIVITY 1.1.4 – ESTABLISHING A FAD NETWORK BETWEEN THE 7+ PARTICIPATING COUNTRIES WITH ANNUAL MEETING TO DISCUSS FAD EXPERIENCES

ITEM	GROUP 1	GROUP 2	GROUP 3	GROUP 4
What is the network for?	<p>What are the objectives of the group) ToRs Sharing/Exchanging of knowledge Lessons learned/ challenges Capacity building Data sharing</p>	<p><u>Fisheries provide:</u> Financial support Technical support Maintenance and awareness Enforcement of law. <u>Fisher Association and community fishers:</u> Maintenance, data collection and monitoring Development of management plan Enforcement of law. <u>Marine Department:</u> Safety at sea Awareness <u>SPC, FAO, FFA</u> Capacity Building <u>USP: Research and Education</u></p>	<p>Trainings Awareness Knowledge sharing</p>	<p>Technical Expertise (rigging and fishing) Traditional knowledge Strong feedback Market access Supply and improve technology</p>

Who is part of the network?	<ul style="list-style-type: none"> fisheries department/ Marine resources fisher association/ coops donors community Ministry of Itaukei Affairs (Fiji) SPC FAO regional partners international partners other stakeholders 	<ul style="list-style-type: none"> Department of Fisheries; rep from Fisherman Association; Marine Department/ MSAF; community fishers; SPC FAO FFA USP 	Government and stakeholders	<ul style="list-style-type: none"> FAD Champion (Government/ Fisher organisations/ Coops private sector; and what if FAD Champion has no access to internet?
How will the network operate?	<ul style="list-style-type: none"> regular contacts/ correspondence; meetings/workshops/ forums; social media; office bearer; recognised and approved by Ministers Forum; and FAD SSF Commission 	<ul style="list-style-type: none"> regional meetings sustainability political support 	<ul style="list-style-type: none"> developing partnerships; internet and emails social media create own network – platform for questions and answers once a year meeting 	<ul style="list-style-type: none"> social media (photos and videos); chat group (Whatsapp, Skype, Messenger); and learning Exchange.
Where to meet?	<ul style="list-style-type: none"> working group to visit in all 7 countries of the project; and SPC regional meetings (HoF) and (RTMCF). 	participating countries or outside the Pacific	<ul style="list-style-type: none"> physically – any country virtually – online platforms 	<ul style="list-style-type: none"> active FAD fishing and monitoring (Tonga, Vanuatu); and post-harvest (Fiji) location.
When to meet?	<ul style="list-style-type: none"> quarterly reporting – electronically (email, Skype, Facebook, social media); annual basis (Fiji); and working group established ASAP. 	twice per year	last half of the year and carry on from there until we have outcomes	<ul style="list-style-type: none"> social media platform – through the year; and physical meeting, end of year 1/beginning of year 2.
Other comments	<p>very important:</p> <ul style="list-style-type: none"> funding sustainability of this project 			

APPENDIX 3: ICT RAPID SURVEY QUESTIONS

JAPAN SMALL-SCALE TUNA FISHERIES DEVELOPMENT PROJECT

An Information and communication technology (ICT) can be broadly described as: Any system that captures, stores or transmits digital information. For fishers this includes VHF radio, mobile phones and applications, GPS and VMS devices, etc.

Name:

Position:

Country:

1. **Does your ministry or department have a data or technologies officer (or other title with responsibility for designing and managing data collection from fisheries?)**

yes

no

2. **Do you own a smartphone?**

yes

no

- 2.i. **Is it your personal phone or provided by your office?**

personal

work

- 2.ii. **Have you ever used it for your work in fisheries? If so, in what way? Or with what apps or functionality?**

yes

no

3. **What percentage of fishers in your country would you estimate owned a smartphone?**

<25%

25-50%

50-75%

>75%



4. **What percentage of islands or coastline in your country would you estimate had mobile/cell system coverage?**

- <25%
- 25-50%
- 50-75%
- >75%

5. **Does your country have a digital or ICT strategy/policy for agriculture or fisheries?**

- yes
- no
- I don't know

6. **Has your government developed any projects involving digital systems, communications or apps for fisheries? (E.g. information, weather, catch recording etc.)**

- yes
- no
- I don't know

If yes, please provide any details

7. **Does your government ask/require fishers to submit catch data?**

- yes
 - no
 - I don't know
-

If yes, how do they submit data? (I.e. on paper, to officers, SMS, whatsapp, a dedicated app on a phone or tablet)

8. **Please rank the following categories of ICTs (1-5) according to your need for information about them for small-scale fisheries in your country:**

- Governance of tenure in SSF and resource management (Catch data & analysis, boat tracking, biological monitoring)
- Social development, employment and decent work (awareness and extension services, safety at sea, networking)
- Value chains, post-harvest and trade (benefit distribution, transport efficiency, post-harvest preservation, traceability)
- Disaster risk and climate change (reducing risk and uncertainty, disaster response and preparedness)
- Gender equality



9. **Are women fishers or traders more or less likely to have a smartphone than men fishers or traders in your country?**

more likely

less likely

equally as likely

Why?

Thank you for taking the time to respond to these questions.



APPENDIX 4: FAD PRIORITY ACTIVITIES WITH TIMING BY COUNTRY

SUMMARY OF FAD PRIORITIES WITH SUB-ACTIVITIES AND TIMELINE OVER THE 1–2 YEARS OF PROJECT IMPLEMENTATION BY COUNTRY, WITH TOP PRIORITY MARKED IN RED, SECOND-LEVEL PRIORITIES IN GREEN, ACTIVITIES UNDERWAY WITH OTHERS IN YELLOW, AND NEW ACTIVITIES IN ORANGE

a) Fiji priority FAD activities

Outcome	Activity	Sub-activity	Year 1				Year 2				Year 3			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2		
Outcome 1: Community nearshore FAD programmes are strengthened and developed to provide improved access to high value species	Activity 1.3.1: National training on data collection on FAD catches, possibly using SPC's TAILS software in Fiji	Consultant to review current national FAD programme/fishers association around data needs (link to activity 2.1.1)	█											
		National workshop with reps from relevant stakeholders/appropriate mechanism for collecting, reporting and type of data to collect		█										
		Procurement of monitoring equipments (e.g. tablets, scales, database, infrastructure, etc.)			█									
		National TAILS training (Training of Trainers)/Develop training manual - Conservation Officers/Fisheries Officers/				█								
		Incorporate ICTs in FAD program (FAD tracking, Sensors, etc.)				█								
		Promote and scale up data collection to national level from trial/pilot sites								█	█	█	█	█

b) Kiribati priority FAD activities

Outcome	Activity	Sub-activity	Year 1				Year 2				Year 3		
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
Outcome 1: Community nearshore FAD programmes are strengthened and developed to provide improved access to high value species	Activity 1.1.3: Development of a FAD committee of some sort for stakeholder input to FAD programme	Community consultation for setting up committee members											
		Develop TOR for the FAD committee											
		Registration for the interested members											
		Quarterly meeting for the National FAD committee											
	Activity 1.1.4: Training in FAD rigging, deploying and FAD fishing techniques provided to fishers in Kiribati	Procurement of minimum of 10 set of FAD materials for 300m depth											
		Procurement of a minimum of 10 set of FAD materials for 1000m depth											
		Training on FAD rigging and deployment to Fishers on the 4 selected islands											
		FAD fishing techniques training including sea safety											
		Development of awareness materials and tool for FAD awareness programs											



Outcome	Activity	Sub-activity	Year 1				Year 2				Year 3		
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
Outcome 1: Community nearshore FAD programmes are strengthened and developed to provide improved access to high value species	Activity 1.2.1: Pilot project for FAD deployments off South Tarawa, linked with fisher Assn/Coops input and boat safety issues.	NFC/OFCF outreach to fishermen association and carry out consultation on FAD program											
		Fishermen association training on TAILS application for FAD catch monitoring											
		Training on basic troubleshooting skills for outboard /engine to Fishermen association by MFMRD/JICA/OFCF											
		Training on TAILS to fishermen cooperatives											
	Activity 1.3.1: National training on data collection on FAD catches, possibly using SPC's TAILS software in Kiribati	Training of Trainers on application of TAILS in Kiribati in close collaboration with SPC											
	New Activity: Support to ICT fishing vessel trial tracking to improve FAD and Non-FAD fishing monitoring to inform FAD management decision (Procurement of 12 units and installation/training for South Tarawa fishermen)	Procurement of 12 units and installation/training for South Tarawa fishermen											

c) Marshall Islands priority FAD activities

Outcome	Activity	Sub-activity	Year 1				Year 2				Year 3			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2		
Outcome 1: Community nearshore FAD programmes are strengthened and developed to provide improved access to high value species	Activity 1.1.1: Review of current national FAD programme to identify lessons learned over the years in RMI. Note: covered under FAO - TCP	Expert mission to identify gaps and challenges												
		Stakeholder consultations												
	Activity 1.1.2: Development of a National FAD Programme ensuring stakeholder input in RMI. Note: covered under FAO - TCP	Identify stakeholders												
		Consultations with experts to facilitate process												
		learn from other countries, i.e. Kiribati												
		Expert to develop draft, review, finalisation												
	Activity 1.1.3: Develop a National FAD Management Plan through a consultative process for RMI. Note: covered under FAO - TCP	Review the current FAD program to identify lessons learned over the years												
		Expert mission to identify gaps and challenges												
		Stakeholder consultations												
	New Activity: Training in FAD fishing techniques and technologies	Scoping: review and analysis of fishing practices; access to fishing gear; local preference of fish species; vessel types												
		Fishing training in vertical longline, Ika-Shibi, Palu-Ahi, squid fishing, flying fish fishing, chumming etc.												
		Monitoring catch data												



Outcome	Activity	Sub-activity	Year 1				Year 2				Year 3		
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
Outcome 1: Community nearshore FAD programmes are strengthened and developed to provide improved access to high value species	Activity 1.3.2: Develop an outreach programme to raise awareness of the importance of FAD catch data in RM	Stakeholder consultations (community groups, fishers, local and national government)											
		Training on data collection											
		Identifying incentives, such as rewards, competition between fishers who collect data											
		Development of awareness materials (stickers for boats (as a constant reminder), posters, newspaper adds, website, social media.											
		Dissemination of awareness materials											



d) Palau priority FAD activities

Outcome	Activity	Sub-activity	Year 1				Year 2				Year 3				
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2			
Outcome 1: Community nearshore FAD programmes are strengthened and developed to provide improved access to high value species	Activity 1.1.1: Review of current national FAD programme to identify lessons learned over the years in Palau	Have a consultant/expert come to undertake the review	█												
	Activity 1.1.2: Develop a National FAD Management Plan through a consultative process for Palau	Have first consultation with stakeholders	█												
		Draft plan and circulate for comment		█											
		Second workshop with stakeholders to finalise draft			█										
		Circulate for final comments and then finalise				█									
		Submit to Minister for entering into law					█								
	Activity 1.1.4: Strengthen governance structure and regulations on the provision of fisheries data in Palau	Year 2						█	█						
	Activity 1.1.6: Training in FAD rigging, deploying and FAD fishing techniques provided to fishers in Palau	Purchase equipment for the training (procurement)		█											
		Run the training activity			█										



e) Samoa priority FAD activities

Outcome	Activity	Sub-activity	Year 1				Year 2				Year 3				
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2			
Outcome 1: Community nearshore FAD programmes are strengthened and developed to provide improved access to high value species	Activity 1.1.1: Conduct validation workshop of Samoa National FAD Management Plan through a consultative process. This is underway with assistance from SPC	Arrange two national consultation workshops for both Upolu and Savaii													
		Procurement of workshop materials, venues, meals, transport fares													
		Arrange/Invite facilitators, boat operators, crews and relevant stakeholders													
		Finalise, printing and launching of Samoa FAD MP													
	Activity 1.3.1: National training on data collection on FAD catches, possibly using SPC's TAILS software in Kiribati	Conduct internal refresher training on monitoring guidelines and procedures													
		Identify potential FAD sites for data collection/survey													
		Conduct internal refresher training on monitoring guidelines and procedures													
		Conduct interview with fishing communities													
		Conduct fishing trials on selected sites													
		Conduct a pre and post fishing checklist on safety at sea procedures													



f) Tuvalu priority FAD activities

Outcome	Activity	Sub-activity	Year 1				Year 2				Year 3		
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
Outcome 1: Community nearshore FAD programmes are strengthened and developed to provide improved access to high value species	Activity 1.1.1: Development National FAD management plan through consultations process.	Workshop meeting with stake holders and fishermen’s associations on planning.	■										
		Develop a draft of the FAD management plan.		■									
		Back to stake holders to reconfirm the draft of the FAD management if they agree.		■	■								
		When the management plan is confirm by stake holders then it will be send it to our legal officer and our Technical Officer to check before sending it up to the cabinet for approve.			■	■							



g) Vanuatu priority FAD activities

Outcome	Activity	Sub-activity	Year 1				Year 2				Year 3		
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
Outcome 1: Community nearshore FAD programmes are strengthened and developed to provide improved access to high value species	Activity 1.1.1: Review of current national FAD programme to identify lessons learned over the years in Vanuatu	Collect & update information the existing FAD activities in Vanuatu	█	█									
		Prepare Budget for the consultation	█	█									
		National consultation with fishers and fishers group		█									
	Activity 1.1.2: Develop a National FAD Management Plan through a consultative process for Vanuatu	Request technical assistance to develop the Plan	█										
		Develop Standard Operation Procedure (SOP) for FAD program		█	█								
	Activity 1.1.3: Training in FAD rigging, deploying and FAD fishing techniques provided to fishers in Vanuatu	Request for technical assistance		█									
		Prepare budget for the training and implement			█	█							
	Activity 1.2.1: Pilot project for FAD deployments, linked with fisher Assn/Coops input in one location in Vanuatu	Purchase equipment for the training (procurement)		█	█	█							

APPENDIX 5: SEA SAFETY PRIORITY ACTIVITIES WITH TIMING BY COUNTRY

SUMMARY OF SEA SAFETY PRIORITIES WITH SUB-ACTIVITIES AND TIMELINE OVER THE 1–2 YEARS OF PROJECT IMPLEMENTATION BY COUNTRY, WITH TOP PRIORITY MARKED IN RED, SECOND-LEVEL PRIORITIES IN GREEN, ACTIVITIES UNDERWAY WITH OTHERS IN YELLOW, AND NEW ACTIVITIES IN ORANGE

a) Fiji priority sea safety activities

Outcome	Activity	Sub-activity	Year 1				Year 2				Year 3		
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
Outcome 4: Safety at sea for FAD fishers is improved	Activity 4.1.2: Local training and support for fishers to upgrade or obtain necessary qualification to meet Fiji requirements.	Develop policy where all boat manufacturers and suppliers to include safety bags in a package which contains EPERB & PLB	█										
		Integrate safety training requirement into Fishers/ Coops membership including grab bags as necessary equipment	█										
		Explore hybrid boat designs - outboard motor with sail	█										
		Boat tracking & social messaging networks	█										
		Sea safety training of trainers and champions in the associations		█									
		Strengthening existing Fishers Association/Cooperative and establishing new ones nationally by integrating safety training and equipment to Fishers nationally				█	█	█	█	█	█	█	█

b) Kiribati priority sea safety activities

Outcome	Activity	Sub-activity	Year 1				Year 2				Year 3		
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
Outcome 4: Safety at sea for FAD fishers is improved	Activity 4.1.2: Modifications to existing boats to improve sea safety (outboard wells and flotation) as part of FAD pilot and coop assistance in Kiribati	Technical Advisor/Consultant recruitment for surveying existing boat design in South Tarawa											
		Consultation with boat builders on recommended safe boat design.											
		Revitalisation of boat building at Fisheries Division through renovation and support in purchasing proper tools for boat building workshop on South Tarawa.											
	Activity 1.3.1: National training on data collection on FAD catches, possibly using SPC's TAILS software in Kiribati	Identify overseas supplier for procurement of sea survival equipment (PLBs and VHF radios) and distribution to Island Councils at subsidized rate											
		To engage with Marine Division for registration of sea safety equipment											



c) Marshall Islands priority sea safety activities

Outcome	Activity	Sub-activity	Year 1				Year 2				Year 3			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2		
Outcome 4: Safety at sea for FAD fishers is improved	Activity 4.1.1: Local training and support for fishers to upgrade or obtain necessary qualification in RMI.	Awareness program on course and RMI Domestic Water Craft Regulations using various platforms (fishing tournaments i.e. Annual Breast Cancer Women's Bottom Fishing Tournament)												
		Conduct training: theory + practical = qualification; local government councils, fisher groups, recreational boaters; separate course for females												
	Activity 4.1.2: Develop a sea safety campaign to raise awareness including all partners for consistency in the RMI.	Stakeholder consultations with expert and coordination among key agencies												
		Awareness program via key stakeholder's awareness platforms (Sea Safety and RMI Domestic Water Craft Legislation) - radio spots, social media, websites, TV commercials, Mass Texting, school visits, Annual mayors' meeting												
		Develop awareness materials to disseminate to Local Governments, Fishing Clubs and Cooperatives, Meeting town halls, docks, community events i.e. fishing tournaments.												



Outcome	Activity	Sub-activity	Year 1				Year 2				Year 3	
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
	Activity 4.1.3: Assistance with developing sea safety and qualification curriculum with training provider in RMI.	Expert and stakeholder consultations		■								
		Coordination among key agencies (local college, Transport Ministry, Fisheries etc. - qualification standards for RMI.		■	■							
		Awareness of safety Course through key agencies awareness platforms			■	■						
		Train the trainers on Yamaha boat engine maintenance and FRP making and repairs				■	■					
		Workshop on Yamaha boat engine maintenance and FRP making and repairs				■	■					
		Sea Safety Colour (orange) added to regulations				■						



d) Palau priority sea safety activities

Outcome	Activity	Sub-activity	Year 1				Year 2				Year 3	
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Outcome 4: Safety at sea for FAD fishers is improved	New Activity: Awareness campaign for sea safety with artisanal fishers and communities	Do an assessment of needs for the outreach programme and set timeline										
		Identify materials needed and develop these										
		Pilot activity in one community for feedback and refining of materials										
		Start outreach programme in different communities as well as through media to get buy-in										



e) Samoa priority sea safety activities

Outcome	Activity	Sub-activity	Year 1				Year 2				Year 3			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2		
Outcome 4: Safety at sea for FAD fishers is improved	Activity 4.1.2: Revive local training program and support for fishers to upgrade or obtain necessary qualification in Samoa	Conduct meeting with Maritime NUS, Marine Division (MWTI) to discuss training program/agenda												
		Inform/invite boat owners, Fisherman Association (Upolu & Savaii)												
		Procure training materials, venues, meals, transportation cost												
		Provide training report												
	Activity 4.1.3 Develop/renewal of sea safety course for Alia fishers in collaboration with the Marine Training Center of Samoa and Maritime New Zealand	Conduct assessment on the current sea safety course to determine if fit for purpose.												
		Approach Maritime New Zealand PMSP (Pacific Maritime Safety Programme) during country visit early 2020 to assist where necessary and delivery of sea safety course												



Outcome	Activity	Sub-activity	Year 1				Year 2				Year 3		
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
Outcome 4: Safety at sea for FAD fishers is improved	Activity 4.1.5: Training in maintenance and repair of 2/4 stroke outboards used by fishers in Samoa	Arrange a two national trainings (Upolu & Savaii) on outboard maintenance (2/4 stroke engines											
		Invite Asco Motors, boat operators, fishers and relevant stakeholders											
		Procure necessary tools, arrange venue, meals, transport costs											
		Provide training report											

f) Tuvalu priority sea safety activities

Outcome	Activity	Sub-activity	Year 1				Year 2				Year 3		
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
Outcome 4: Safety at sea for FAD fishers is improved	Activity 4.1.1: Review of legislation and development of regulations for small scale fishing craft	SPC models for regulations of small scale fishing craft review for Tuvalu safety situations. Change to suit.											
	Activity 4.1.3: Training in maintenance and repair of 2-stroke outboards used by fishers	Approach the PMSP, OFCF, SPC, FAO and JICA for assistance in technical expertise for training and/or workshops for out boat motor maintenance and repair.											



g) Vanuatu priority sea safety activities

Outcome	Activity	Sub-activity	Year 1				Year 2				Year 3		
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
Outcome 4: Safety at sea for FAD fishers is improved	Activity 4.1.1: Local training and support for fishers to upgrade or obtain necessary qualification for Vanuatu	Review the current training course with VMC											
		MOU to be sign between lines agencies for implementation of activities for resource sharing. (VFD, OMR,VMC & DOL)											
		Review the current boat registration and licensing conditions											
	Activity 4.1.2: Sea safety equipment is available at affordable prices for small-scale fishers - how to do this in Vanuatu?												
	New Activity: Installation of tracking device on fisher's boats.												
	Activity 4.1.6: Develop sea safety awareness materials for fishers and fishers associations. E.g Safety check list												



APPENDIX 6: REGIONAL PRIORITY ACTIVITIES WITH PROPOSED TIMING

SUMMARY OF REGIONAL PRIORITIES WITH SUB-ACTIVITIES AND TIMELINE OVER THE 1–2 YEARS OF PROJECT IMPLEMENTATION BY COUNTRY, WITH TOP PRIORITY MARKED IN RED, SECOND-LEVEL PRIORITIES IN GREEN AND NEW ACTIVITIES IN ORANGE

Sub-activity	Year 1				Year 2			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Outcome 1: Community nearshore FAD programmes are strengthened and developed to provide improved access to high value species								
Activity 1.1.1: Regional study on environmentally friendly or eco-friendly FAD designs and materials for anchored FADs								
Activity 1.1.2: Regional study on the effectiveness of FADs as a management tool - have they moved fishing effort away from reef fisheries? Also assess the impact, is any, of nearshore FADs on coastal reef resources.								
Activity 1.1.3: Regional review of FAD designs and the longevity or lifespan of each design, with a focus in different buoy systems, anchor systems for different depths, bathymetric profiles, and costing to inform management.								
Activity 1.1.4: Establishing a FAD network between the 7 participating countries with annual meeting to discuss FAD experiences. This could include the integration of FAD programme into community-based fisheries management programme (to improve management and look to achieve 2 year lifespan of FADs).								
Activity 1.1.5: South-south exchanges focused on FADs between the 7 participating countries, but also with other regions such as the Caribbean.								

Activity 1.1.6: Study undertaken to identify the safe consumption levels of tuna and other pelagics, with Palau one case study.									
New Activity 1.1.7: Develop guidelines or standard operating procedures (SOP) for deploying FADs.									
Activity 1.3.1: Regional workshop for using TAILS for data collectors (probably in Fiji).									
New Activity: Regional review and/or assessment of incentive mechanisms to encourage fishers to collect and submit accurate data (catch and effort, FAD monitoring, could include economic data from cooperatives etc).									
Activity 1.3.2: Regional workshop for analysing the data collected from TAILS on FAD catches and management implications.									

Outcome 2: Fishers' associations and cooperatives are structured and strengthened									
Activity 2.1.1: Multi-region workshop (Pacific and Caribbean) for cooperative managers to share knowledge and experiences.									
Activity 2.1.2: South-south exchanges for association / cooperative managers between the 7 participating countries, but also with other regions such as the Caribbean.									
New Activity: Regional workshop for data collection and analysis, including economic and social dat, for fisher cooperative and/or association members, with a focus on the executive officers.									

Outcome 3: Livelihood opportunities and revenue generating activities (RGAs) (ecotourism, sports fishing) are developed									
Activity 3.1.1: Regional study on marine-related livelihood activities and their effectiveness - what are the challenges, lessons, and what has worked?									

New Activity 3.1.2: Workshop for "train the trainer" training in value-adding for fish products.								
New Activity 3.1.3: Research on improved technology for increasing production in post-harvest area.								

Outcome 4: Safety at sea for FAD fishers is improved								
Activity 4.1.1: Study on EPIRBs, PLBs and other such devices (life jackets and equipment in grab bags) looking at the cost, effectiveness and longevity of the units in isolated locations, including replacement or maintenance costs.								
New Activity 4.1.2: Workshop to "train the trainers" in outboard engine maintenance and the maintenance of EPIRBs and other such devices (in grab bags)								
New Activity 4.1.3: Regional train the trainer workshop on sea safety								



From
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