



**OUR FISH,
OUR FOOD,
OUR HEALTH,
OUR WEALTH,
OUR FUTURE**

A Roadmap for coastal fisheries and marine aquaculture for Papua New Guinea: 2017–2026



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A Roadmap for coastal fisheries and marine aquaculture for Papua New Guinea: 2017–2026

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NATIONAL FISHERIES AUTHORITY

Our fish, our food, our health, our wealth, our future

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for Papua New Guinea: 2017-2026**

Acknowledgement



In making the *Roadmap for Coastal Fisheries and Marine Aquaculture for Papua New Guinea: 2017-2026* a reality, many people were involved in a range of consultations and meetings, starting at the Coastal Fisheries Symposium held in Madang in September 2012. Since then, the staff of the National Fisheries Authority, namely Leban Gisawa, Jeff Kinch, Leka Pitoi and Luanah Yaman; along with Dr Hugh Govan have driven the development of this roadmap through various consultative processes. Various other stakeholders within Papua New Guinea's fisheries sector have also played an important role in the development of this roadmap and I now take this opportunity to thank all those people who have given their time and who have contributed to the roadmap's development and I trust that it will become a lasting initiative for many years to come.

Job Pomat, *National Fisheries Authority Board Chair*

Foreword



As minister responsible for the management and development of the fisheries sector in Papua New Guinea, I am very impressed to see that the National Fisheries Authority has taken a proactive stance in managing the development of the coastal marine resources of this vast country with the development of the *Roadmap for Coastal Fisheries and Marine Aquaculture for Papua New Guinea: 2017-2026*. The roadmap is a key deliverable of the National Fisheries Authority under the O'Neil-Dion government and now stands as a living and holistic document and provides a pathway for the National Fisheries Authority to work with other stakeholders from the many coastal and island communities, the provincial fisheries offices, and with other provincial and national government agencies. The effective implementation of the roadmap will greatly assist Papua New Guinea to meet its various development aspirations, including Vision 2050, the *National Strategy for Responsible, Sustainable Development for Papua New Guinea*, the medium term development strategies, as well as to meet other development goals under the Millennium Development Goals. It is an honor for me to provide the foreword for this roadmap, and I look forward to the full support of the National Fisheries Authority to meeting the challenges of Papua New Guinea and ensuring that economic benefits, food security, gender equity and development aspirations are available to all. It is our fish, our food, our health, our wealth and, most importantly, our future.

Hon. Mao Zeming, *CMG, MP, Minister for Fisheries and Marine Resources*

Preface



The National Fisheries Authority is charged with the challenge of effectively managing Papua New Guinea's fisheries and marine resources for sustainable and equitable benefits for all Papua New Guineans, now and into the future. The *Roadmap for Coastal Fisheries and Marine Aquaculture for Papua New Guinea: 2017-2026* shows us the way forward, and strategically challenges the National Fisheries Authority and other partner stakeholders to achieve the goal of sustainable and equitable benefits from Papua New Guinea's coastal resources. It is therefore critical that the National Fisheries Authority strives to fully implement the objectives and milestones of the roadmap. We must all rise to this challenge as one.

John Kasu, *National Fisheries Authority Managing Director*

Acronyms

ACFF	Annual Coastal Fisheries Forum
BdM	bêche-de-mer
CEPA	Conservation and Environment Protection Authority
CFMG	Coastal Fisheries Management Group (NFA)
CIFDA	Coastal and Inland Fisheries Development Agency
CRIS	Coastal Resources Information Strategy
FAO	Food and Agriculture Organization of the United Nations
LLG	local level government
M&E	monitoring and evaluation
MEF	Monitoring and Evaluation Facility
MoUs	memoranda of understanding
MSG	Melanesian Spearhead Group
NCMDP	National Coastal Fisheries Management and Development Policy
NFA	National Fisheries Authority
OCCD	Office of Climate Change and Development
PFOs/A	provincial fisheries offices/authorities
PFP	provincial fisheries profiles
PNG	Papua New Guinea
RCFMA	Roadmap for Coastal Fisheries and Marine Aquaculture
SPC	Pacific Community
TNIA	training needs and information assessment
UN	United Nations
VTC	Vocational Training Centres
WSPF	workplans for the strengthening of provincial fisheries

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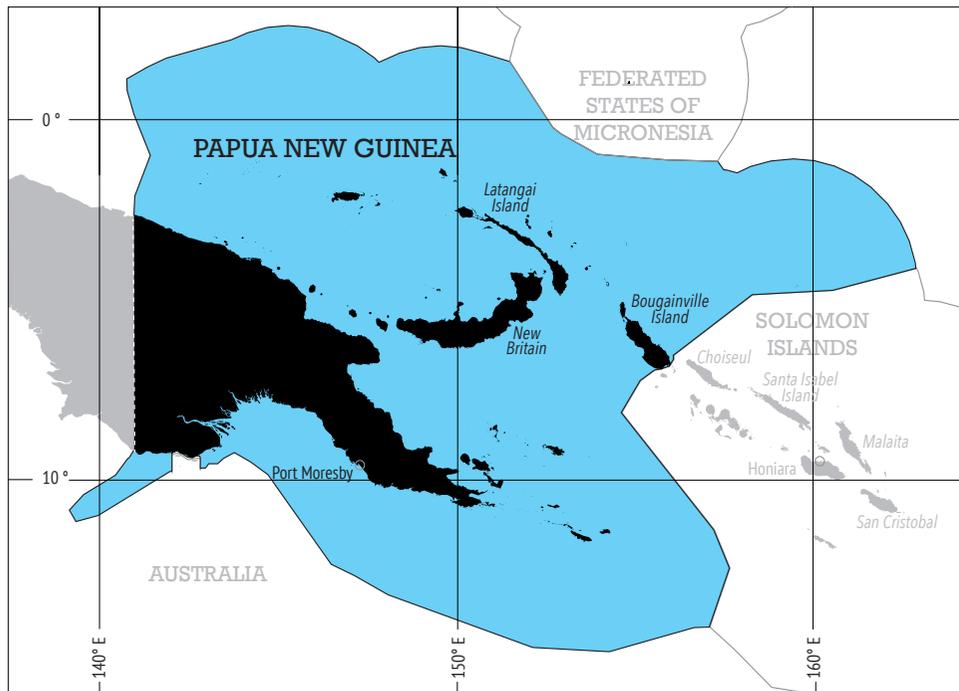
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Background and justification

Coastal fisheries in Papua New Guinea

Papua New Guinea (PNG) shares maritime borders with Australia, Solomon Islands, Federated States of Micronesia, and Indonesia (which it also shares a land border with). PNG has an economic exclusion zone (EEZ) covering an estimated 3,120,000 km² of marine waters. PNG also has a long coastline (~17,110 km in length) extending along 14 maritime provinces. Each of these maritime provinces has a wide and diverse range of social, cultural, economic and ecological environments with varying degrees of harvesting and catch on multiple and targeted coastal resources from estuarine, coral reef, mangrove and sea-grass habitats. The sustainable exploitation of these coastal resources provides many opportunities for development aspirations, economic opportunities and food security for PNG's coastal and island communities, as well as those people residing in ever-expanding urban centres.



Map 1: Papua New Guinea and its Economic Exclusion Zone

The importance of coastal resources

The main coastal resources exploited in PNG are:

- sea cucumbers for the production of bêche-de-mer;
- shells for button-making, mostly trochus, and some green snail;
- shell meat, mostly giant clams, trochus, and various other edible shellfish;
- shells for sale to tourists, either as whole shells or processed into jewellery;
- shells for the production of traditional custom valuables (most common being shell money);
- other coastal invertebrates;
- reef fishes, including fish for the live reef food fish trade and fish maw;
- coastal pelagic fish;
- sharks, mostly targeted for their fins;
- estuarine fishes, including barramundi;
- deep-slope fish, notably snappers and groupers;
- crustaceans, mostly mud crabs, prawns and lobsters;
- other marine plants and algae;
- ornamental fish for export for the aquarium trade;
- corals that are harvested for the production of lime to chew betel nut with; and
- turtles (including the shell and jewellery trade) and dugongs (these endangered species are not considered a fishery in the traditional sense, since they come under the Conservation and Environment Protection Authority's [CEPA's] responsibility).

Marine aquaculture commodities that may have potential in PNG for market or subsistence purposes include:

- gold-lip and black lip pearl;
- sandfish (sea cucumber);
- ornamental fish, corals and clams;
- finfish; and
- oysters.

Of all these coastal resources, the most commercially important for local coastal and island communities in PNG are the sea cucumber and shell fisheries for sale,

followed by shark-fins, and crustaceans. Despite the contribution these resources provide to the national economy, especially where the product is exported, substitutes for imports or is sold for household income, there is, unfortunately, limited information available about the total production of PNG's coastal commercial fisheries.

Accurate estimates of subsistence fisheries landings are also lacking, with estimated annual coastal subsistence fisheries catches in PNG ranging from 20,600 to 30,000 tonnes. Much of the subsistence coastal fisheries catch is consumed in the fisher's home, with surplus sold, traded, bartered or used in customary exchanges.

In the coastal and island areas, estimates of fish consumption range from 4.8 kg/capita to as high as 24.9 kg/capita and it is estimated that up to 90% of marine resources eaten, traded or sold are caught from coral reefs and other coastal marine habitats, such as mangroves and sea-grass beds.

Marine resources play a vital role in food security for island and coastal communities across PNG and also provide a source of healthy protein, all too important given the current rise in non-communicable diseases.

Healthy marine habitats are not only crucial to the production of these resources but in addition provide irreplaceable ecosystem services, such as coastal protection and carbon capture.

Threats to coastal resources

Subsistence fisheries generally appear to be taking place within maximum sustainable yields. However, fisheries in some localities and for some species have collapsed and this seems to be associated with key factors such as:

- proximity to urban centres or other commercial markets;
- the existence of a high value market for the species (e.g. sea cucumbers); and
- impacts on coastal waters and habitat degradation from onshore development such as agriculture, logging, and mining activities.

Emerging threats include population growth and climate change. Human population growth will place ever more pressure on coastal fisheries as a vital source of protein. With the population of PNG expected to increase by 2,000,000 to over 10,000,000 from 2015 to 2030, the current demand for fish may be expected to

nearly double.¹ The estimated coastal fisheries production for PNG in 2007 was 35,000 tonnes² (80% from subsistence harvesting) and one estimate of maximum coastal fisheries productivity based on existing healthy habitat is 98,760 tonnes, which suggests that a projected increase in demand of 169,100 tonnes by 2035 will not be met by production and may lead to general over-exploitation, especially if habitats are degraded (figure 1).

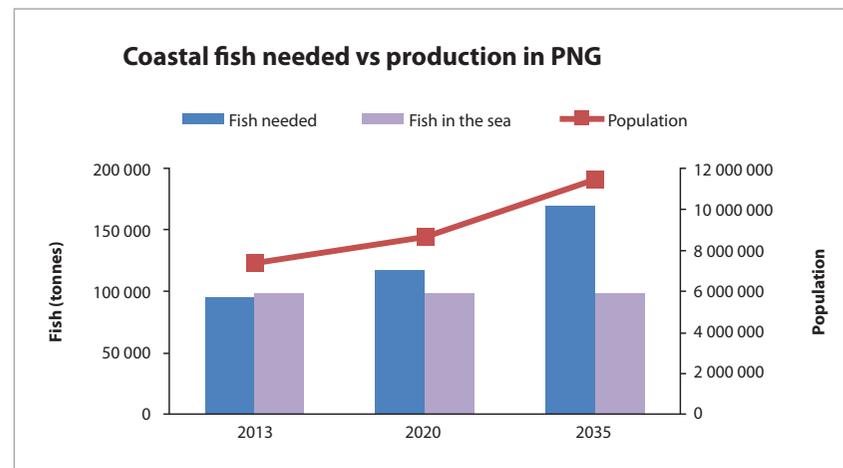


Figure 1: Graphic representation of approximate amount of sea food needed by a growing population to maintain current consumption rates (data from Bell et al. 2015).

The projected impacts of climate change on coastal ecosystems and associated fisheries resources relate to the level of exposure and capacity to cope, or resilience. Many coastal and island communities are already experiencing erosion of beachfronts due to rising sea levels and increasing frequency of storm surges and king tides. Climate models predict that El Niño Southern Oscillation events will become more frequent and the warming of oceanic waters will seriously affect marine life, especially corals, as sea temperature rise causes more coral bleaching, ocean acidification, disruption to food chains and disease.

In all, the increasing threats from uncontrolled commercial pressures, habitat degradation, population growth and climate change, coupled with anticipated investment in community development, will require more effective national and provincial resource management systems that build on and support management and sustainable use by communities.

¹ Bell et al. 2015. Diversifying the use of tuna to improve food security and public health in Pacific Island countries and territories. *Marine Policy* 51: 584–591

² Gillett 2009. Freshwater production is estimated at 17,500 tonnes in the same study.

The establishment of effective resource management systems at all levels is the basis and prerequisite for any coastal fisheries development aspirations and vital to ensure that even the current benefits of coastal fisheries continue.

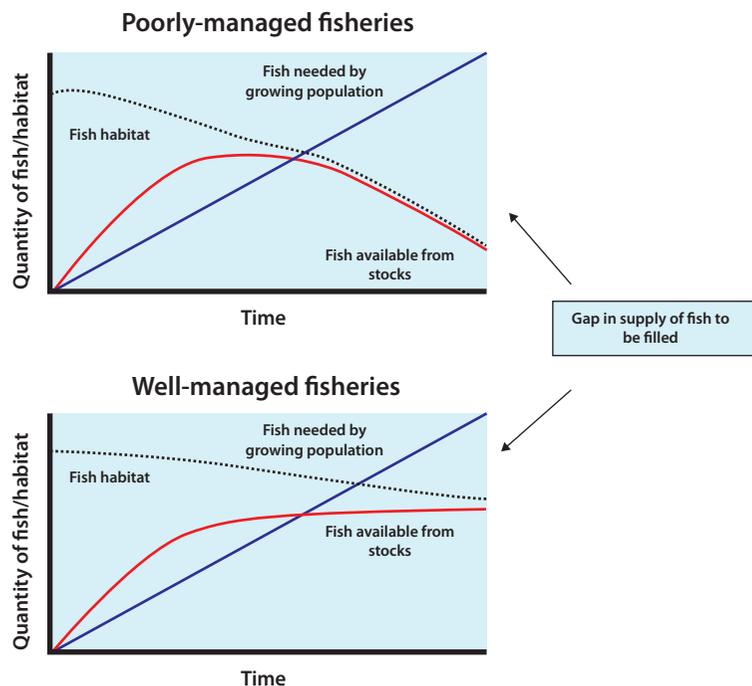


Figure 2: Impact of poor management of stocks and habitats on sea food supply (SPC 2008)

The challenges to sustainable management and development of coastal fisheries

To ensure the continued economic benefits and biological and ecological sustainability of marine resources in PNG's coastal zone, the National Fisheries Authority (NFA) prioritises support to sustainable development and management of coastal fisheries and marine aquaculture through key mechanisms, including:

- provincial fisheries grants to Provincial Fisheries Offices/Authority (PFOs/A);
- project development funds;
- micro-financing arrangements with various agencies;
- memoranda of understanding (MoU) between NFA and PFOs/A; and
- provincial fisheries planning support.

Challenges

Coastal fisheries development has not met expectations and coastal resources are yet to be sustainably managed. Challenges to implementation of effective coastal fisheries management and sustainable development include:

1. geographical scale – the large extent of coastlines and near-shore marine areas which incur vast logistical challenges;
2. the complexity of coastal fisheries, ecosystems and diverse coastal communities;
3. the lack of appropriate data to inform managers at all levels;
4. limited income-generating options and alternative livelihoods for coastal and island communities;
5. the lack of suitable financing arrangements for people who wish to develop small-to-medium scale commercial activities; and
6. the lack of suitable marketing and transport infrastructure to enable small-to-medium scale commercial activities, particularly fish markets for coastal and island communities.

Institutional barriers

Institutional barriers to the implementation of effective coastal fisheries management and sustainable development are both internal to NFA and relate to sub-national entities. These are listed below.

- Business units within NFA are not sufficiently coordinated and do not communicate, so strategies are not integrated.
- Funding and associated service delivery is not tied adequately to outcomes, nor are they strategically delivered and coordinated at the provincial level, resulting in poor implementation of policy objectives.
- Collaboration between NFA and provinces is one-sided or inadequate, which in turn hinders addressing joint policy priorities and reduces effective service delivery.
- Interventions may not go through adequate feasibility assessment and are frequently not monitored or evaluated which undermines decision-making and reduces effectiveness.
- Capacity and work effectiveness, especially at the provincial level, is low and decision-makers do not have adequate information or skills at the community, ward, local level government, district and provincial levels.

Need for a roadmap for coastal fisheries and marine aquaculture

Increased government focus on coastal fisheries at the regional level is reflected in the leadership shown by PNG and its Melanesian neighbours in developing the *Roadmap for Inshore Fisheries Management within the Melanesian Spearhead Group (MSG)*, which was endorsed by all MSG Leaders in June 2015. Subsequent regional commitments, such as *The Noumea Strategy and the Regional Roadmap for Sustainable Pacific Fisheries*, further highlight the importance of sustaining coastal fisheries.

At national level, in response to ministerial directive and other policy, the NFA has developed this *Roadmap for Coastal Fisheries and Marine Aquaculture (RCFMA)* to aid in the coordination of activities, to systematically address the barriers and challenges identified and to ensure active partnership in the management and development of coastal fisheries and marine aquaculture throughout PNG for the period of 2017–2026.

Policy background

The RCFMA is a strategic management and development framework for coastal fisheries and marine aquaculture in PNG and is linked to various development strategies of the PNG National Government, the NFA Corporate Plan, and provincial fisheries management and development plans and policies. It intends to ensure joint implementation in provinces through MoU arrangements and joint workplans as illustrated in Figure 3.

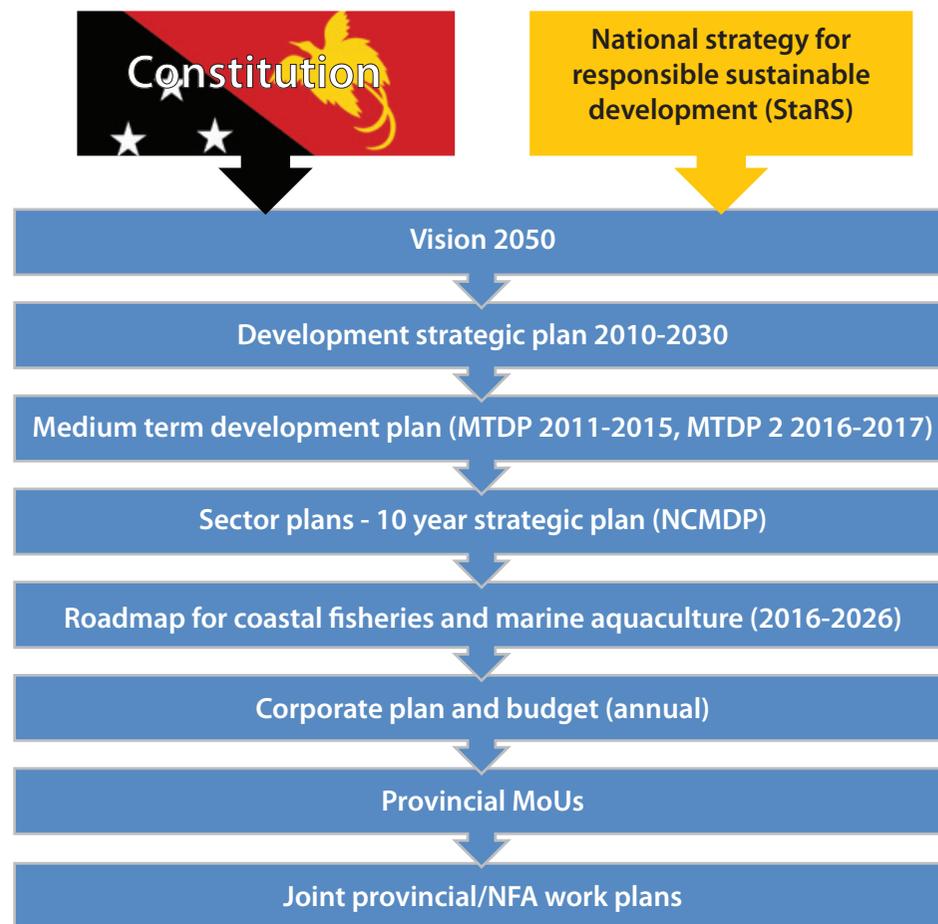


Figure 3: National policy context of the RCFMA

Internationally, the RCFMA is directly aligned with the MSG Roadmap, and the Pacific Community's (SPC's) Noumea Strategy (replacing the previous Apia Policy) and the United Nation's (UN's) Food and Agriculture Organization (FAO) and other UN instruments. The policy context for the RCFMA is summarised in Table 1.

Table 1: International and regional policy context of the RCFMA

National policy	
Papua New Guinea's 4th Goal of the Constitution	'Papua New Guinea's natural resources and environment to be conserved and used for the collective benefit of us all and are replenished for the benefit of future generations'
Papua New Guinea's National Fisheries Authority Vision	'To effectively manage fisheries and marine resources for sustainability and equitable benefits'
Papua New Guinea's Vision 2050 Focus Areas	Focus Area 2: 'Wealth Creation, Natural Resources and Growth through a Dynamic and Competitive Economy' Focus Area 5: 'Climate Change and Environmental Sustainability through Resilience and Sustainable Development Measures'
Development Strategic Plan 2010-2030	'Develop a fisheries sector that is both sustainable and highly profitable for PNG...'
Medium Term Development Plan 2 2016-17	Reviewing, developing and implementing a Sustainable Marine Resource plan Creating awareness on responsible management and use of fishery and marine resources; Developing the human capital and institutional capacity for the National Fisheries Authority and related stakeholders of the fishery sector. E.g. Subnational governments
National Strategy for Responsible Sustainable Development (StaRS)	Shifting government expenditure: away from activities that waste, overuse or degrade environmental assets because such a 'disabling' environment makes green investments less competitive.
Fisheries Management (Amended) Act 2015	(a) promote the objective of optimum utilisation and long term sustainable development of living resources [...]; (b) conserve the living resources for both present and future generations; [...] (d) apply a precautionary approach to the management and development of aquatic living resources; (e) protect the ecosystem as a whole, including species which are not targeted for exploitation, and the general marine and aquatic environment; [...]
Sub-regional policy	
Melanesian Spearhead Group road map for inshore fisheries management and sustainable development 2015-2024	'Sustainable coastal fisheries, well managed using community based approaches, that provide long-term economic, social and food security benefits to our coastal communities' through the following objectives: 1. Implement effective policies, legislation, management frameworks and financing mechanisms [...] 2. Conduct education, awareness raising and the provision of information on the importance and management [...] 3. Manage, maintain and restore fisheries stocks (e.g. BDM) to secure long-term economic and social benefits [...]
Regional policy	
The Noumea strategy: A new song for coastal fisheries – pathways to change. 2015	Vision: Sustainable well-managed inshore fisheries, underpinned by community-based approaches that provide food security and long-term economic, social and ecological benefits to our communities. Overarching outcomes: 1. Improved wellbeing of coastal communities and; 2. Productive and healthy ecosystems and fish stocks
Future of Fisheries: A Regional Roadmap for Sustainable Pacific Fisheries 2015	The Roadmap anticipates a 10-year timeframe for all Pacific Island countries to have put in place policies and legislation that provide for the involvement of coastal communities in the management of their fisheries resources. Communities will drive local management regimes with clear user rights, supported by national controls on export commodities.
International policy	
Food and Agriculture Organisation's (FAO) Code of Conduct for Responsible Fisheries	Article 6.18: 'Recognizing the important contributions of artisanal and small-scale fisheries to employment, income, and food security, states should appropriately protect the rights of fishers and fish workers, particularly those engaged in subsistence, small-scale and artisanal fisheries, to a secure and just livelihood, as well as preferential access, where appropriate, to traditional fishing grounds and resources in the waters under their national jurisdiction'
FAO's Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication	Objective B: 'to contribute to the equitable development of small-scale fishing communities and poverty eradication and to improve the socio-economic situation of fishers and fish workers within the context of sustainable fisheries management'

A roadmap for coastal fisheries and marine aquaculture for Papua New Guinea: 2017–2026

Vision

Our fish, our food, our health, our wealth, our future

Goal

To sustainably develop and manage our coastal resources to provide sustenance, income and ecosystem benefits to our communities and the nation at large without endangering food security or the long-term health of the resources.

Objectives

- 1. Establish an enabling environment** to fully implement effective policies, legislation, management frameworks, coordination and financing mechanisms.
- 2. Ensure suitable capacity development and access to information** for capacity building, education and awareness-raising activities, and ensure the provision of information for the management and sustainable development of coastal resources and marine aquaculture by all stakeholders, with a particular emphasis on women and youth.
- 3. Manage coastal resources for sustainable development** and maintain and restore coastal resources to secure long-term social and economic benefits for coastal and island communities.

Principles

- Sustainable development builds on a foundation of well-managed resources and follows the principles of an ecosystem approach to fisheries management.
- Management measures are based on the best scientific evidence available and are designed to maintain or restore stocks and, where necessary, take a precautionary approach to fisheries development.

- Empowerment and capacity building are needed for PFOs/A and coastal and island communities, with particular emphasis on women and youth.
- Food security, livelihood opportunities and income generation, promoting inclusiveness, consultation, participation, transparency and accountability must be ensured for coastal and island communities.
- There is a need to acknowledge differences between PFOs/A, provincial marine ecosystems and provincial development aspirations.
- Feasibility and social and economic viability ensures that approaches are socially and economically sound and support community resilience.
- Adaptation activities to mediate vulnerability and to increase resilience and adaptive ability of coastal and island communities and their marine environments need to be incorporated.
- The need for realistic, achievable, step-wise and measurable approaches guided by appropriate monitoring and evaluation must be recognised.

Key approaches

Maximise the potential of communities and clarify roles

Policies and legislation will ensure the involvement of coastal and island communities in the management of their fisheries resources and will be supported by PFOs/A to enforce appropriate controls on export commodities in a collaborative approach known as co-management.

Relevant information for community and government managers

The decisions of communities and government resource managers and stakeholders will be based on relevant and widely available information, incorporating traditional knowledge and best scientific advice. Progress and experience will be objectively monitored and evaluated.

Re-focus fisheries agencies to support local coastal fisheries management

An integrated approach to co-management and sustainable development that will reach the thousands of PNG communities requires improved or restructured ways of working within NFA and new approaches to support provinces in their work with lower levels of government and communities. Funding to provinces needs to be more strategically delivered and tied to measurable management and development outcomes. Provincial fisheries development plans indicate broad priorities of the individual provinces but in order to ensure national policy priorities in sustainability and impact are achieved, NFA, across several business units, will develop work plans with each provincial administration to guide implementation

and provide capacity building and institutional strengthening. NFA will consider providing more liaison and mentoring of staff at the provincial level.

Partnerships to ensure wider policy impacts

Better collaboration with other government and non-government agencies will allow NFA and PFOs/As to assist in achieving integrated coastal management, seascapes and marine managed area outcomes with CEPA, climate change adaptation and resilience outcomes with the Office of Climate Change and Development (OCCD), marine spatial planning and ocean policy with various actors, and coordinating infrastructure development with the Coastal and Inland Fisheries Development Agency (CIFDA).

Milestones

A phased approach is proposed to firstly address the institutional barriers identified, progressing towards setting up the required systems and structures for longer-term joint planning and implementation.

Short term (2017-2018)

In the short term, NFA needs to refocus its internal structures and processes in order to overcome the institutional barriers and improve service delivery to provinces and communities. This needs to involve:

- processes to be set in place to strengthen coordination between NFA business units, to clarify roles and restructure as necessary;
- a solid and measurable basis for interventions based on feasibility studies, and monitoring and evaluation and audit capability to regularly guide and coordinate coastal fisheries policy implementation to be ensured through the proposed monitoring and evaluation facility;
- funding mechanisms to be reviewed and capacity ensured to achieve the impact of high level objectives and, in particular, resource sustainability, food security and improvement of incomes and livelihoods;
- mechanisms in place that ensure service delivery through, and eventually by, provinces in a stepwise and incrementally autonomous capacity-building approach, based on conditional funding and partnership with provincial administrations;
- sector policy to be refined and consolidated, based on the roadmap; and
- suitable coordination with PFOs/A and communities for the co-management of important coastal fisheries (e.g. the sea cucumber fishery).

Medium term (2019-2022)

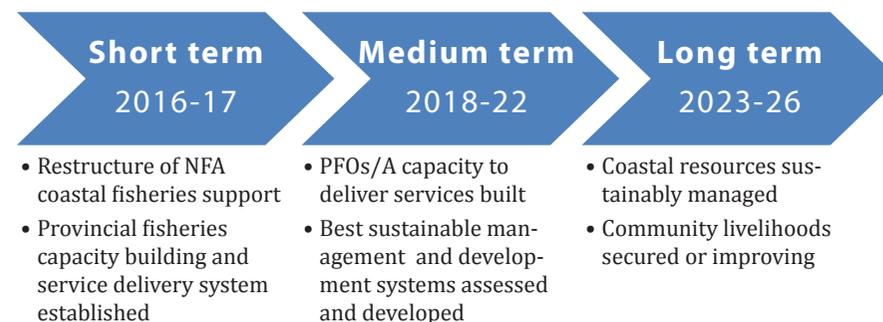
In the medium term, NFA will work in partnership with PFOs/A to ensure that:

- provincial MoUs and provincial development plans are reflected in joint workplans with NFA that ensure “whole of provincial government” involvement and buy-in;
- the capacity of PFOs/A is built to achieve sustainable fisheries management and priority income generation approaches with appropriate engagement of other stakeholders and levels of government;
- the impact of interventions is assessed and the choice and design of interventions for the context of different provinces is improved;
- development and infrastructure interventions demonstrably include assessment of their sustainability and provisions for securing this during and after the intervention;
- coastal and island communities and other stakeholders receive adequate information for decision-making and coastal fisheries management systems have begun to function, particularly for sea cucumbers; and
- partnerships are consolidated at provincial and national levels, and an annual coastal forum is held.

Long term by the end of 2026:

- 75% of coastal and island communities regularly receive awareness and information;
- 30% of coastal and island communities have accessed alternative livelihood support; and
- coastal fisheries management is operational and sea cucumber stocks are stabilised.

Strategy timeline summary



Monitoring and evaluation

Improving monitoring and evaluation and other strategic functions relating to feasibility assessment and reporting is a particular focus of attention in this roadmap so as to ensure regular, formal and transparent review. Two key mechanisms will be established:

Monitoring and Evaluation facility

A monitoring and evaluation (M&E) facility or unit will be established within NFA that is staffed with at least two or three technically qualified specialists. This is to ensure the quality of projects and that documentation for existing and new projects is adequate to enable M&E, to ensure feasibility studies are carried out or

commissioned, and to perform or ensure M&E is actually commissioned, analysed and assessed.

Senior management committees for coastal fisheries

Senior managers with responsibilities relating to coastal fisheries will be tasked with ensuring coordination and implementation of this roadmap. In addition, their functions will be expected to include basic M&E and feasibility reporting in collaboration with the M&E facility.

Detailed guidelines for project documentation, feasibility assessment and M&E will be developed at an early stage with provision for review of this roadmap at two, five, eight and ten years.



Implementation matrix for the Roadmap for Coastal Fisheries and Marine Aquaculture for PNG (2017-2026)

The implementation matrix is based on the structure of the MSG Roadmap for Inshore Fisheries and is summarised on this page. Cross referencing between actions is indicated by the Action numbers and major products are indicated in bold where they are mentioned e.g. **Coastal Fisheries Management Group (CFMG)**.

- ACFF** Annual Coastal Fisheries Forum
- BdM** Bêche de mer
- CBAs** Cost Benefit Analysis
- CFMG** Coastal Fisheries Management Group (NFA)
- CRIS** Coastal Resources Information and Education Strategy
- M&E** Monitoring and Evaluation
- MEF** Monitoring and Evaluation Facility

- MoUs** Provincial Memoranda of Understanding with NFA
- MSG** Melanesian Spearhead Group of Countries
- NCMDP** National Coastal Fisheries Management and Development Sector Policy
- PFP** Provincial Fisheries Profiles
- TNIA** Training Needs and Information Assessment
- WSPF** Workplans for the Strengthening of Provincial Fisheries
- +++++** Ongoing implementation

		Short term (2018)				Medium term (2022)				Long term (2026)			
		17/1	17/2	18/1	18/2	19	20	21	22	23	24	25	26
Objective	1 Implement effective policies and financing mechanisms												
Outcome	1.1 Institute effective policies, legislation, institutional etc												
Action	1.1.1 Refocus NFA structure and operations	CFMG	MEF										
Action	1.1.2 Development of NCFMDP				NCFMDP								
Action	1.1.3 Delegation of powers to subnational and communities		+++++	TNIA		WSPF	MoUs						
Outcome	1.2 Implement an adequate resource mobilization program												
Action	1.2.1 Increase efficiency of fisheries management service				Review			Review		+++++	Review	+++++	+++++
Action	1.2.2 Ensure sustainable and adequate revenue		Review	+++++	Review	◆							Review
Outcome	1.3 Establish effective collaboration												
Action	1.3.1 Development of partnership strategies with key agencies		ACF	ACF	+++++	ACF >	+++++	+++++	+++++	+++++	+++++	+++++	+++++
Action	1.3.2 Lesson sharing between MSG members		+++++		◆	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
Objective	2 Capacity building, education, awareness raising and information												
Outcome	2.1 Information to coastal resource stakeholders												
Action	2.1.1 Increase awareness			TNIA	CRIS	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
Action	2.1.2 School curricula					◆	+++++	+++++	+++++	+++++	+++++	+++++	+++++
Action	2.1.3 Political profile and increasing transparency		+++++				+++++	+++++	+++++	+++++	+++++	+++++	+++++
Action	2.1.4 Scientific information and research				PFPs	◆	+++++	+++++	+++++	+++++	+++++	+++++	+++++
Outcome	2.2 Capacity building												
Action	2.2.1 Development of capacity at subnational government level		+++++	TNIA		◆	◆	◆	◆	+++++	+++++	+++++	+++++
Action	2.2.2 Capacity of community leaders												
Action	2.2.3 Improve service delivery to subnational government				◆	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
Objective	3 Manage, maintain and restore coastal resources												
Outcome	3.1 BdM stocks and coastal fisheries management												
Action	3.1.1 Develop improved management systems for coastal fisheries					BdM				◆			◆
Outcome	3.2 Supplementary and Alternative Income Generation activities												
Action	3.2.1 Roll-out of complementary sustainable livelihoods initiatives												◆

Objective 1	Implement effective policies, legislation, management frameworks and financing mechanisms to sustainably develop and manage coastal resources..		
Outcome 1.1	<i>Institute effective policies, legislation, institutional and management frameworks that empower provincial fisheries administrations and coastal and island communities to manage their coastal resources and marine aquaculture.</i>		
Purpose	Coastal fisheries rights, roles and responsibilities agreed and designated at community, district, provincial and national levels as appropriate and supported by policy and legislation, resulting in more effective sustainable fisheries development and management.		
Actions	Key Activities	Outcomes	Outputs (yr/qt)
1 Refocus NFA structure and operations	<ol style="list-style-type: none"> 1. Establish Coastal Fisheries Management Group (CFMG) to ensure coordination within NFA 2. Review and restructure NFA business units to better support coastal fisheries and provincial activities and capture this in the Corporate Plan 3. Review and establish coordinated financing unit and guidelines 4. Establish Monitoring and Evaluation Facility (MEF) and procedures 5. Repost or hire staff as appropriate 	<ul style="list-style-type: none"> • Responsibilities and structure of NFA business units for coastal fisheries clarified, and approaches to building capacity, managing fisheries and implementing projects within provinces coordinated • Monitoring, evaluation and feasibility assessment of proposed and existing projects is carried out • Financing of provincial fisheries is strategic, coordinated and transparent – supporting implementation of the intent of this Roadmap 	<p>2017/2 CFMG established</p> <p>2017/3 NFA structure reflected in Corporate Plan</p> <p>2017/3 Financing reviewed</p> <p>2017/3 MEF and procedures established</p> <p>2017/4 Changes implemented</p>
2 Develop National Coastal Fisheries Management and Development Policy (NCFMDDP)	<ol style="list-style-type: none"> 1. CFMG leads and commissions assessment of legislation and rights related to coastal fisheries management and marine aquaculture at national, provincial and local levels 2. Agree recommendations for addressing any legislative gaps and barriers, as well as incorporating other relevant policy priorities, particularly environment, gender, youth, and climate change 3. Information generated from pilots 2.1.1 and MEF 1.2.1 to inform NCFMDDP 4. Carry out national 1.3.1 and sub-national consultations 1.1.3 on draft NCFMDDP, including First Annual Coastal Fisheries Forum 5. Finalise NCFMDDP and present to the board for approval 6. Implementation of NCFMDDP, including necessary legal reforms 	<ul style="list-style-type: none"> • An operational legal framework that clarifies the rights and responsibilities in coastal fisheries co-management, particularly of communities as well as various levels of government. • Initiation of an ongoing partnership approach to working with different agencies and at different levels relating to coastal fisheries • A well-informed and comprehensive sector policy serving as overall guidance 	<p>2017/4 Commission legal review</p> <p>2018/1 Draft legal review</p> <p>2018/2 Draft NCFMDDP</p> <p>2018/3 NCFMDDP consultations complete</p> <p>2018/4 NCFMDDP complete</p>
3 Delegate powers to sub-national authorities and communities to ensure most effective fisheries management service delivery	<ol style="list-style-type: none"> 1. Implement Training Needs and Information Assessment (TNIA) 2.1.1 and initiate provincial element of legislation assessment 2.2.1 2. Consultative discussions with provinces on the roadmap and proposed new strategies for joint planning and implementation 3. Initiate provincial joint planning approach in each province to achieve individual Workplans for the Strengthening of Provincial Fisheries (WSPF) under the provincial MoUs, with reference to provincial development plans and the objectives of this Roadmap 4. Support 4. Support implementation with mentoring and coordination of basic service delivery functions under the WSPF: <ol style="list-style-type: none"> a. Fisheries management 3.1.1 b. Livelihood and income generating options 3.2.1 c. Projects and infrastructure 5. Support provincial sector policy development and drafting of template legislation as required 6. Regular M&E and review of MoUs and WSPF 	<ul style="list-style-type: none"> • Agreed legislative and institutional framework for coastal fisheries management and development, especially at community / sub-national level, piloted and ready for legislating • New approach to building sub-national capacity and institutions, community management and project support, monitoring, control and surveillance (MCS) and enforcement, joint implementation of projects and M&E being implemented • Coherence of NFA support, financing and provincial implementation with broader aims of sustainable development reflected in “whole of provincial government” fisheries planning and incremental funding based on improvements in capacity, all captured in reviewed MoUs and WSPF. 	<p>2018/1 TNIA complete. See 2.2.1</p> <p>2017-2019 Workplans for the Strengthening of Provincial Fisheries (WSPF) rolled out and implemented with each province</p> <p>2018-2020 Provincial sector policy and legislation as required</p> <p>2020 Reviewed provincial MoUs</p>
Outcome 1.2	<i>Implement an adequate resource (human, financial, infrastructure) mobilisation programme to support the sustainable development and management of coastal fisheries and marine aquaculture.</i>		
Purpose	Improved fisheries management outcomes that are operational, cost-effective and sustainable within foreseeable resourcing scenarios		
Actions	Key Activities	Outcomes	Outputs (yr/qt)
1 Increase efficiency of fisheries management service	<ol style="list-style-type: none"> 1. MEF leads business units to review and prioritise current service delivery activities at national and provincial levels to greatly increase area coverage of support for coastal fisheries management using the most cost-effective approaches 2. Review and strategize affordable staff levels required at national and provincial/district/LLG levels (through restructure review 4.1.1 and TNIA 4.1.3) to perform coastal fisheries management and sustainable development functions at scale 3. Strategically align roles of NFA staff to support provinces (WSPF 4.1.3) 4. MEF review of most common or big ticket interventions used by provinces and NFA to improve selection criteria and guidance and ensure that interventions do not undermine resources. Regular review of RCFMA (2,5,8, 10 years) 	<ul style="list-style-type: none"> • Improved strategies for ensuring fisheries management and sustainable development outcomes reach more resource users and communities (guidance from MSG Fisheries Roadmap) • Staffing structures at national and provincial level better reflect ways to achieve large-scale geographic coverage and, particularly, adequate support for coastal fisheries management • Interventions are assessed and selected to have optimum chances of success, including strategies to ensure resource and project sustainability 	<p>2017-2019 Staffing structure and functions for service delivery agreed and duties reflect priority coastal management activities at all levels</p> <p>2018-2020 Reviews and guidance on common fisheries interventions</p> <p>2018, 2021, 2023 and 2026 Roadmap reviews</p>

2	Increase or ensure sustainable and adequate revenue to support fisheries management	1. Review NFA's financing arrangements for coastal fisheries development, management and monitoring activities (Provincial Fisheries Grants [PFGs], Project Development Fund [PDF] and other micro-financing support) to provide recommendations on how the monies can better achieve objective 1.1.1	<ul style="list-style-type: none"> Coastal fisheries management is adequately prioritised and effectively funded, beneficiaries contribute to sustaining the health of resources, and resource degradation is penalised Provinces and communities have improved access to funding to ensure restoration and management of resources and resilience to long-term threats 	2017/3	Financing mechanisms reviewed
		2. Explore sustainable financing of key functions such as licensing levies, compliance bonds, auctioning, penalties, etc. to finance management costs at different levels (e.g. community to national)		2018/3	Report on sustainable financing options
		3. Provincial governments prioritise fisheries management and sustainable development functions in recurrent budgets 1.1.3		2019	Mechanisms for accessing adaptation funds improved
		4. Ensure communities have transparent access to adaptation funds, facilities and/or culturally appropriate technologies for climate change adaptation			
		5. Invite and encourage donors and NGOs to participate in Provincial Heads of Fisheries meetings and Annual Coastal Fisheries Forum (ACCF) to finance provincial programmes			

Outcome 1.3 *Establish appropriate mechanisms for effective collaboration with all relevant stakeholders*

Purpose Coastal fisheries management and sustainable development strategies and activities are aligned and coordinated at national and provincial level (including NGOs) and shared at Melanesian level.

Actions	Key Activities	Outcomes	Outputs (yr/qt)	
1	Develop partnership strategies with key agencies 1. Build partnerships with national environment, climate change and other agency stakeholders (e.g. OCCD, CIFDA, Oceans Policy unit) through regular meetings and ACFF 2. Assess and include in provincial networking and workplans (WSPF) relevant stakeholders in each Maritime Province (e.g. customs, forestry, police, defence, justice, churches, private sector, industry and NGOs)	<ul style="list-style-type: none"> National stakeholders network, share lessons and align strategies to implement the NCFMDP and its co-management arrangements Provincial fisheries resources stakeholders regularly meet, share lessons and align or complement strategies 	2017/2	Regular meetings with key partners (ACFF), report back to CFMG
			2018	Provincial networking is working practice
2	Improve coordination and lesson-sharing among MSG members 1. Pursue MSG-level opportunities for appropriate sub-regional sharing and support, including the MSG roadmap and MoU on Technical Cooperation in Coastal Fishery and Aquaculture Development 2. Initiate MSG and bilateral regional forums to share information and develop exchange programs on sub-regional approaches to improving coastal fisheries management and sustainable returns from BdM	<ul style="list-style-type: none"> Sub-regional mechanism for sharing provincial-level experience, expertise and management approaches and for exploring sub-regional opportunities 	2018	Conduct one MSG workshop on progress in coastal fisheries management and BdM with emphasis on provincial staff

Objective 2 Conduct suitable capacity building, education, awareness-raising and the generation and provision of information for management and sustainable development of coastal fisheries and marine aquaculture to all stakeholders.

Outcome 2.1 *Appropriate information is generated and provided to all coastal resource users, managers and policy makers to ensure the sustainable development and management of coastal resources and marine aquaculture.*

Purpose Stakeholders are well informed and are promoting sustainable and strategic approaches to management and development with increased compliance and improved governance.

Actions	Key Activities	Outcomes	Outputs (yr/qt)	
1	Increase awareness of the vulnerability of coastal fisheries and opportunities for managing them 1. Undertake information needs assessment on inshore fisheries (information specific for target audience) as part of implementing a TNIA 2. Develop and implement a CRIS , targeting national, sub-national and local levels: <ol style="list-style-type: none"> Internal agency working group led by National Fisheries College (and key external agencies CEPA, CIFDA, OCCD, Ocean Policy Unit) to agree key messages, and recommend materials and approaches that best serve government policy and have the best chance of success (see 1.3.1 linkages) Inventory and assess information / awareness materials on coastal fisheries and their management, including stock status at national level and in each Maritime Province to support provincial fisheries profiles (PFP) 2.1.4 Assess experiences in information dissemination and provide recommendations on how information can be better disseminated to island and coastal communities, PFAs and other relevant stakeholders Assess future pressures on coastal fisheries, e.g. population growth, climate change and expected coastal resource needs for each Maritime Province, incorporating gender and youth appropriately Produce or reprint, record or prepare appropriate materials Commence implementation and piloting of key information and awareness activities in select provinces (e.g. bêche-de-mer 3.1.1) 3. Produce and commence delivery of the CRIS	<ul style="list-style-type: none"> All (target ultimately 100%) fishers, resource users and other stakeholders have knowledge and tools that facilitate detection of over-exploitation, implementation of sustainable resource management and compliance with rules and regulations 	2017/3	Working group (including other agencies) formed
			2018/2	CRIS produced in coordination with TNIA
			2018/4	CRIS implemented in at least two provinces

2	Achieve long-term attitudinal change through school curricula	<ol style="list-style-type: none"> 1. Consult and engage Ministry of Education or curriculum development authorities to determine how inputs on coastal resources and fisheries management may be incorporated and deployed in school materials and curricula 2. Produce relevant school materials as part of CRIS 2.1.1 3. Support deployment and use of materials in school curricula 	<ul style="list-style-type: none"> • Support for achieving generational change in attitude that allows more responsible and informed attitude to sustainable use and management of coastal resources 	2019	Curricula and materials developed
				2021	Majority of coastal schools adopting curricula
3	Lift the political profile and increase transparency of coastal fisheries	<ol style="list-style-type: none"> 1. NFA and support agencies (Forum Fisheries Agency and SPC) provide balanced advice to provincial governments (e.g. through Provincial Maritime Governors' Meeting) and encourage appropriate attention to coastal fisheries on the basis of food security, sustainable development, etc. 2. Prepare parliament briefs on the status of the inshore fisheries and the need for a shift towards a sustainable management paradigm, ensuring that ministers and parliamentarians are specifically informed 3. Regular updates through regional forums (e.g. MSG and Pacific Islands Forum), targeted at leaders / senior decision makers. Ensure that coastal fisheries and, in particular, sustainable management have a regular place on regional agendas 4. Public dissemination of information on state of stocks, licencing and effectiveness of management 	<ul style="list-style-type: none"> • Support and resources for the sustainable use and management of coastal resources are increased as reflected in budgets, policies and political priorities at provincial, national and regional levels 	2017/4	Regular public media releases (priority bêche de mer)
				2018	Ongoing yearly parliament briefs and interventions at Provincial Maritime Governors' Meetings
				2018	PNG provides updates and briefs at regional and international meetings
4	Provide adequate scientific information to inform fisheries management	<ol style="list-style-type: none"> 1. NFA conducts an information needs analysis (associated with TNIA) and develops / improves a research strategy for key inshore fisheries to ensure decisions are based on cost-effective scientific information 2. Work with each Maritime Province to compile provincial fisheries profiles and provide recommendations on strengthening coastal fisheries data collection and analysis by NFA, PFAs and coastal and island communities 3. Identify information requirements and collect information for responsible small-scale fisheries and sustainable development, including information on illegal, unreported and unregulated fishing and produce reports capturing trends over three-year periods 4. Support implementation of appropriate research and surveys, including fisheries and BdM landings sampling and surveys 3.1.1 	<ul style="list-style-type: none"> • Cost-effective research and stock assessment on key species prioritised and conducted and linked to information strategy, including dissemination of provincial and national status reports 	2018	Research strategy produced
				2018	PPFs produced in selected provinces
				2019	First "Status of coastal fisheries report"
Outcome 2.2		<i>Capacity is built to ensure the sustainable development and management of coastal resources and marine aquaculture</i>			
Purpose		Stakeholders, particularly at sub-national levels, have adequate capacity for effective, strategic and wide-scale management and sustainable development of coastal fisheries.			
Actions	Key Activities	Outcomes	Outputs (yr/qt)		
1	Develop capacity at sub-national government level	<ol style="list-style-type: none"> 1. NFA conducts specific provincial TNIA based on minimum expected functions for fisheries management and sustainable development, identifying staffing gaps and detailing areas needing immediate support, including accountability and transparency, gender, youth, and climate change 1.1.3 2. Implement training, prioritising service delivery skills for impact management and sustainable development services through joint implementation of WSPF (i.e. training on the job, mentoring), NFC core courses and the use of vocational training centres (VTCs) 	<ul style="list-style-type: none"> • Provincial and other sub-national officers and agencies have appropriate staff with skills to take responsibility for implementing and monitoring coastal fisheries management which is founded on community based approaches 	2018/1	Training needs and information assessment (TNIA) see 1.1.3
				2019-2026	Courses at NFC and VTCs
				2018-2026	Implement training through WSPF in each province
2	Build capacity of community leaders and authorised officers or equivalent	<ol style="list-style-type: none"> 1. Assist PFAs to conduct district / local level government (LLG) / community capacity needs assessment, based on minimum expected functions for fisheries management and sustainable development 2. Produce a strategic approach to building local level capacity based on awareness and strategic interventions (e.g. at LLGs or districts) 3. Support PFAs as part of the WSPF to facilitate, train and support small-scale fishing communities' management of the resources for which they have tenure rights and are traditionally used for their livelihoods and are depended on 	<ul style="list-style-type: none"> • Communities with knowledge, skills and examples to manage coastal fisheries and ensure that development interventions are sustainable 	2018-2021	Each WSPF set and implement area/numbers based targets for communities / LLG / wards to achieve widespread coverage
3	Improve service delivery by national fisheries administration to sub-national government level.	<ol style="list-style-type: none"> 1. Develop and share a new regional training framework appropriate to the Melanesian context, based on exchange of information and staff, lessons learned, and national strategies relevant to delivering support to communities and traditional tenure holders through sub-national and local fisheries agencies and structures 1.3.2 	<ul style="list-style-type: none"> • Improve service delivery by national fisheries administrations to provinces, local government and communities based on shared experiences and exchanges across MSG, with particular emphasis on BdM 	2018	Conduct one MSG workshop on progress in coastal fisheries management and BdM with emphasis on provincial staff

Objective 3	Manage, maintain and restore coastal resources to secure long term social and economic benefits for coastal and island communities		
Outcome 3.1	<i>BdM stocks rebuilt, catches stabilised, and long-term economic value maximized and sustained. Other resources similarly benefit from improved management systems overall</i>		
Purpose	Implement effective mechanisms for the management, maintenance and restoration of coastal resources, especially sea cucumber stocks to maximise long-term economic value and ecological sustainability		
Actions	Key Activities	Outcomes	Outputs (yr/qt)
1	<p>Develop improved management systems for coastal fisheries, especially sea cucumber fisheries and the bêche-de-mer trade</p> <p>1. Coordinate the implementation of national level contributions to this roadmap as detailed above and including:</p> <ol style="list-style-type: none"> monitoring, evaluation, feasibility and economic and market studies of management interventions including of BdM; continuing to coordinate resource assessment to assess the recovery status of sea cucumber stocks and other commercially important coastal species; continuing to undertake multi-stakeholder consultations to improve the BdM management plan, applying the principles of ecosystem approaches to fisheries management undertaking socio-economic surveys to determine the impact of the current management intervention and develop appropriate measures to optimise community benefits of the BdM fishery and the proportion of rent that goes back to places of origin and management costs 1.2.2 strategising sampling activities at export level to ascertain the population structure of the BdM resources exported; and developing minimum price watch programmes to ensure coastal communities are not disadvantaged by price transfers along the chain of custody <p>2. Support implementation of coastal fisheries management at provincial level through WSPF and including:</p> <ol style="list-style-type: none"> establishing working relationships with appropriate levels of governance (e.g. LLGs, wards, districts), including functioning Provincial and LLG Management and Advisory Committees and provisions for enforcement / monitoring, control and surveillance Awareness raising and socialisation of fisheries information, management and bêche-de-mer roadmap to all stakeholders Establish and ensure functioning of monitoring, compliance, surveys and reporting 	<ul style="list-style-type: none"> Effective mechanisms for the management, maintenance and restoration of coastal resources (especially sea cucumber stocks) to maximise long-term economic value and ecological sustainability are being implemented by national and sub-national government and communities 	<p>2018 BdM fisheries management plan implemented and revised as necessary</p> <p>2023 30% of coastal communities have been reached by the awareness and information component of this roadmap</p> <p>2026 75% of coastal communities have been reached by the awareness and information component of this roadmap</p> <p>2026 BDM and general coastal fisheries management is operational and stocks are stabilised</p>
Outcome 3.2	<i>Reduction of pressure on inshore wild fisheries resources and increased sustainable revenue to resource dependent communities from the assessment and implementation of targeted supplementary and alternative income generation activities</i>		
Purpose	Supplementary and alternative income generation activities investigated and implemented in suitable areas		
Actions	Key Activities	Outcomes	Outputs (yr/qt)
1	<p>Development and roll-out of complementary sustainable livelihoods initiatives</p> <p>1. The MEF leads evaluation of appropriate investments and alternative livelihood activities and ensures that future investments and income-generating options meet the criteria of feasibility, sustainability, and social impacts (e.g. gender and youth) and are monitored under an appropriate evaluation framework 1.2.1</p> <p>2. Ensure MEF evaluation and assessment findings are used as guidance in elaborating joint WSPFs to guide NFA and PFOs/A work.</p> <p>3. Strategic implementation at provincial level of priority development strategies as assessed above and integrated with sustainability provisions – these might include inter alia:</p> <ol style="list-style-type: none"> supporting development and capacity building of associations of fishers (e.g. cooperatives) and fish workers in all stages of the value chain; supporting mentoring and strategic planning for small and medium enterprises; value-adding, processing, handling, increasing preservation or market diversification; carrying out market needs assessments, targeting domestic markets, and integration with project grants, SMEs and other interventions; and supporting appropriate deployment and roll-out of inshore fish aggregating devices, seaweed farming, sandfish farming, aquarium species, trap nets, inland aquaculture and recreational fishing. <p>Regular M&E and review of MoUs and WSPF as appropriate 1.1.3</p>	<ul style="list-style-type: none"> Investments that ensure sustainable outcomes in terms of social, economic and particularly resource base sustainability in appropriate infrastructure and organisational structures, and capacity development to support small-scale fisheries, including the post-harvest subsector, in producing good quality, safe fish and fishery products, for both export and domestic markets, in a responsible and sustainable manner 	<p>2018-2020 Reviews and guidance on common fisheries interventions</p> <p>2017-19 WSPF rolled out and implemented in each province</p> <p>2026 30% of coastal communities have accessed alternative livelihood support</p>



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