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Assessment of the alignment of national fisheries and aquaculture strategies and the national agricultural investment plans to the policy framework and reform strategy for fisheries and aquaculture in Africa and climate change adaptation

STAKEHOLDERS CONSULTATIVE AND VALIDATION WORKSHOP FOR THE STATE OF LIBYA

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ENHANCING SUSTAINABLE FISHERIES MANAGEMENT AND AQUACULTURE DEVELOPMENT IN AFRICA: A PROGRAMME FOR ACCELERATED REFORM OF THE SECTOR FISHERIES GOVERNANCE PROJECT PHASE 2 (FISHGOV 2)

STAKEHOLDERS CONSULTATIVE AND VALIDATION WORKSHOP FOR THE STATE OF LIBYA for the Review of National Policies in African Union Member States and Make Specific Recommendations for Alignment and Domestication of Global Instruments

Assessment of The Alignment of National Fisheries–Aquaculture Strategies and The National Agricultural Investment Plans to The Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa and Climate–Change Adaptation











INTRODUCTION 🍁

This chapter critically examines the extent to which Libya's national fisheries and aquaculture strategies, as well as its agricultural investment frameworks, align with the African Union's Policy Framework and Reform Strategy for Fisheries and Aquaculture in r Africa (PFRS) and the continent's broader climate adaptation objectives. Given Libya's increasing vulnerability to climate change, exacerbated by water scarcity, sea-level rise, and coastal degradation, there is a growing need for strategic policy coherence and integrated planning. The chapter draws upon a comprehensive review of key national documents, stakeholder consultations, and international frameworks to identify institutional gaps, vulnerabilities, and potential reforms necessary to build a climate-resilient blue economy in Libya. It emphasizes the importance of inter-sectoral coordination, data-driven planning, and investment in climate-smart technologies for sustainable fisheries and aquaculture development.



METHODOLOGY

A broad set of national documents were reviewed to evaluate their alignment with the AU-IBAR (PFRS) and their integration of climate change considerations. These included Libya's aquaculture and marine wealth strategies, climate and biodiversity frameworks, environmental and marine laws, and international reports. This analysis helped identify policy gaps, climate vulnerabilities, and opportunities to enhance climate resilience within the country's fisheries and aquaculture governance.

Key stakeholders were engaged to assess institutional and operational alignment with continental and global frameworks. These included representatives from 1) The Ministry of Marine Resources, 2) The Ministry of Agriculture and Livestock, 3) The Ministry of Environment.

DOCUMENT **REVIEW**

STAKEHOLDER CONSULTATIONS:



A structured (SWOT) analysis was conducted using findings from both the document review and stakeholder consultations. This helped to systematically evaluate Libya's readiness to integrate climate adaptation in the fisheries and aquaculture sectors and to prioritize areas requiring strategic reform

SWOT **ANALYSIS:**





CLIMATE CHANGE RISKS AND IMPACTS ON LIBYA'S FISHERIES AND AQUACULTURE:

Climate Vulnerability & Agriculture:

Challenges:

Institutional & Strategic Libya lacks a dedicated climate change adaptation strategy for its fisheries and aquaculture sectors. While some Gaps: adaptation measures are found in national frameworks like the draft National Climate Change Strategy and NBSAP, institutional capacity and monitoring systems remain weak..



Libya's semi-arid to arid climate severely limits freshwater availability, with 7 out of 19 livelihood zones identified as lacking resilience to climate change. Strengthening climate resilience through improved water use, climate-smart agriculture, and support for smallholder farmers is critical for food security.

Fisheries & Aquaculture Despite Libya's long Mediterranean coastline, the fisheries and aquaculture sectors remain underdeveloped and increasingly threatened by climate change impacts such as rising sea temperatures, affecting marine biodiversity and fish stocks...



0000 LIBYA'S CLIMATE CHANGE ADAPTATION PLAN: ASSESSMENT OF **DESCRIBED RISKS, VULNERABILITIES, AND MITIGATION MEASURES**

Climate Threats and Resource Vulnerability: Libya is increasingly affected by climate change impacts such as rising temperatures, reduced rainfall, sea level rise, and extreme weather events, posing serious risks to water resources, agriculture, and coastal communities.

Policy Commitments and Gaps: While Libya ratified the Paris Agreement in 2021 and submitted its first NDC, it has not yet updated its NDC or submitted a formal National Adaptation Plan (NAP), reflecting critical policy and implementation gaps.

International Support Initiatives: Two major initiatives (SECCAR and CASEP) are supporting Libya in strengthening regulatory frameworks, enhancing climate adaptation capacity, and developing a comprehensive NAP, with a focus on sustainable energy and water scarcity.

Institutional Coordination: The creation of the National Climate Change Committee (NCCC) in 2021 marks progress in institutional coordination. The NCCC is responsible for guiding national climate policy, including NDC updates and NAP development.

ASSESSMENT OF DESCRIBED RISKS, VULNERABILITIES, AND MITIGATION MEASURES

OVERALL RISKS FOR LIBYA

AQUATIC ECOSYSTEMS

Category	Status in National Climate Strategy	Level of Risk	Proposed Mitigation Measures	
Climate Vulnerabilities	Identifies temperature rise, drought, water scarcity, extreme weather	High	Integrated water resource management, solar energy, early warning systems	
Anticipated Risks	Decreased rainfall, increased evapotranspi ration, desertificatio n, heatwaves	High	Green infrastructure, afforestation, smart agriculture, and community resilience	
Overall Gaps	No NDC submitted; no national climate change law; no formal NAP	Critical gap	Urgent need to finalize NDCs, NAP, and national legal climate framework	

Category	Status in Strategy/NBS AP	Level of Risk	Proposed Mitigation Measures
Climate Vulnerabilities	Rising sea surface temperatures, coastal erosion, saltwater intrusion	High	Marine spatial planning, coastal buffer zones, pollution control
Anticipated Risks	Loss of marine biodiversity, damage to seagrass beds, acidification risks	High	Habitat protection, creation of marine protected areas (MPAs)
Gaps	No monitoring program for marine climate impacts; limited ecosystem data	Critical	Establish monitoring systems, data- driven habitat mapping

FISHERIES AND AQUACULTURE

Category	Status in Strategy/Proj ects	Level of Risk	Proposed Mitigation Measures
Climate Vulnerabilities	Sea warming, changes in fish migration, inland water scarcity	High	Promotion of climate-smart aquaculture (e.g., temperature- tolerant species)
Anticipated Risks	Reduced productivity of key species, aquaculture stress, gear losses	High	Upgraded infrastructure, offshore cages, early warning systems
Gaps	No fisheries- specific climate adaptation plan; weak institutional capacity	High	Integrate fisheries into NDCs, NAIP, and climate finance frameworks

CLIMATE CHANGE RISKS AND IMPACTS ON LIBYA'S FISHERIES AND AQUACULTURE SECTOR:

It is obvious Libya currently lacks an official NAP, though the draft strategy provides a foundation for climate adaptation planning. Aquatic ecosystems, fisheries, and aquaculture are recognized as vulnerable, but not yet addressed with sector-specific adaptation frameworks. High levels of risk are identified across all categories due to environmental sensitivity and weak institutional capacity. Proposed measures exist in principle but need to be operationalized through integrated planning, legal reform, and investment mobilization. Below is an overview of the key climate change risks and impacts affecting Libya's fisheries and aquaculture sector:

overview of the key climate change risks and impacts affecting Libya's fisheries and aquaculture sector

Drivers	Biophysical Impacts	Implications for Fisheries and Aquaculture	Proposed Adaptation Measures
Changes surface water temperature	- Changes in species distribution (northward migration)- Coral bleaching and seagrass loss- Altered spawning periods and reproductive cycles	- Decline in local fish stocks (sardines, groupers, mackerel)- Disruption to artisanal fishers' catch patterns- Economic losses for coastal communities	- Promote adaptive fisheries management- Conduct stock assessments regularly- Diversify target species and fishing grounds
Increased Salinity and Evaporation (inland areas)	- Reduced freshwater inflows- Loss of brackish water zones for aquaculture	- Stress on land-based aquaculture (especially tilapia, catfish)- Decrease in aquaculture water quality and fish survival rates	- Use of salt-tolerant aquaculture species- Integrate recirculating aquaculture systems (RAS)- Improve water reuse and treatment systems
Rising sea level	- Inundation of low-lying fishing ports and hatcheries- Salinization of coastal aquifers	- Damage to infrastructure- Displacement of coastal communities- Decreased access to freshwater for hatcheries	- Establish coastal buffer zones- Relocate critical infrastructure- Enhance coastal monitoring and resilience planning
Changes in precipitation and water availability	- Increased droughts inland- Runoff leading to sedimentation and pollution in coastal waters	 Impact on feed crop production (barley, soy) for aquaculture- Degraded nearshore ecosystems affecting wild fisheries 	- Promote sustainable watershed management- Implement erosion control and reforestation- Support climate-smart agriculture to secure feed
Increase in frequency and/or intensity of storms	 Physical damage to aquaculture cages and boats- Habitat destruction (e.g., seagrass beds, rocky reefs) 	 High operational costs and risk for aquaculture investors- Reduced nursery and breeding habitat for marine species 	- Reinforce aquaculture systems- Develop early warning systems- Introduce insurance schemes for climate risks

IMPACT



SPECIFIC IMPACTS ON LIBYA'S FISHERIES SECTOR:

Artisanal fisheries, which dominate Libya's fishing effort, are particularly vulnerable due to their dependence on seasonal species and coastal habitats. Changes in water temperature and current patterns have already shifted the availability of certain fish stocks.

Species such as sardines, cuttlefish, and red mullet, which form the bulk of domestic landings, are being affected by warming waters and declining productivity.

The absence of advanced monitoring systems makes it difficult to assess climate-driven shifts in stock abundance, leading to increased uncertainty and risk for fishers.

SPECIFICIMPACTS ON LIBYA'S AQUACULTURE SECTOR:

Inland freshwater aquaculture (primarily tilapia and catfish) faces serious water scarcity due to rising evaporation and prolonged droughts in the southern and interior regions.

Marine cage aquaculture, being tested developed along the eastern and coastline, is vulnerable to storm surges and rising temperatures that increase fish stress and disease outbreaks.

The lack of biosecurity measures, hatchery capacity, and climate-resilient infrastructure remains a major challenge for aquaculture expansion.

IMPACTS



CLIMATE IMPACTS ON LIBYA'S FISHERIES AND AQUACULTURE

THE NATIONAL AGRICULTURAL INVESTMENT PLAN AND STRATEGIC AGRICULTURAL DEVELOPMENT POLICY IN LIBYA:



Missed Opportunities for

Policy Alignment:

Current agricultural planning in Libya lacks integration with key frameworks like the PFRS and the Paris Agreement. Fisheries and aquaculture are notably absent from national climate adaptation strategies and NAIP investment goals, limiting their contribution to sustainable development and resilience.

Limited Integration of Fisheries

and Aquaculture:

Libya's National Agricultural Investment Plan (NAIP) and strategic agricultural policies primarily focus on terrestrial agriculture, with little explicit recognition of fisheries and aquaculture, despite their potential to enhance food security, rural livelihoods, and climate resilience..

Data and Institutional Gaps:

Weak data systems and institutional fragility hinder Libya's ability to monitor Sustainable Development Goals (SDGs), particularly SDG 2, 6, 8, 12, and 15, and design effective, targeted interventions across sectors..

Potential for Synergy and

Expansion:

The NAIP's focus on improving productivity, water efficiency, and rural employment offers entry points for including aquaculture-related investments, such as integrated farming systems, recirculating aquaculture, and fish feed production, especially in response to severe water scarcity..



Inter-sectoral Coordination:

Unlike countries like Zambia, Libya lacks a coordinated agricultural. fisheries investment framework. Strengthening inter-sectoral planning and aligning with PFRS Policy Areas 1, 4, and 7 could mobilize more support for blue economy development and climate-adaptive food systems.

KEY NATIONAL FRAMEWORKS AND STRATEGIC PROGRAMS:

Libya is not an active CAADP implementer, but aligning its NAIP aquaculture and strategies with CAADP and PFRS can attract support, improve coordination, and promote climate-resilient growth. While a fully CAADP-NAIP aligned lacking, is national frameworks like the National Project for Aquaculture, Agricultural Development Strategy, NBSAP, Draft Climate Change Strategy (gnimocpu eht dna ,(2023) tcelfer ygetartS ytiruceS dooF noitingocer gniworg fo doof ni elor s'erutlucauqa ytisrevidoib ,ytiruces ,noitcetorp larur dna .tnempoleved

Framework / Program	Lead Entity	Focus Area	Aquaculture Relevance	CAADP/PFRS Alignment Potential
National Project for Aquaculture	Ministry of Marine Resources	Fish production, hatcheries, feed, rural employment	Direct – core aquaculture program	High – aligns with inclusive & climate goals
Agricultural Development Strategy	Ministry of Agriculture	Productivity, food systems, rural development	Indirect – aquaculture as an investment area	Medium – opportunity for integration
National Biodiversity Strategy (NBSAP)	General Authority for Environment	Biodiversity, marine habitat protection	Indirect – supports sustainable fisheries	Medium – links to sustainable use of resources
Draft Climate Change Strategy (2023)	General Authority for Environment	Water use, climate- smart agriculture	Indirect – identifies aquaculture as vulnerable	Medium – calls for climate adaptation planning
Food Security Strategy (in development)	Ministry of Planning + FAO/UNDP	Local protein production, food system sustainability	Direct – aquaculture included to boost protein supply	High – supports SDG 2 & food self- sufficiency

GAPS IN ALIGNMENT OF THE NATIONAL AGRICULTURAL INVESTMENT PLAN WITH PFRS AND CAADP INVESTMENT GUIDELINES:

1. Land-Focused Priorities: Libya's NAIP primarily emphasizes land-based agriculture (cereals, livestock, irrigation), with minimal focus on fisheries and aquaculture.

2.Institutional Gaps: Absence of a dedicated fisheries/aquaculture strategy and fragmented governance limit the sector's adaptation to climate change and investment growth.

3. Untapped Potential: Despite Libya's Mediterranean coastline, water scarcity, and food import dependency, the contribution of fisheries and aquaculture to food security and economic diversification remains underutilized.

4. Misalignment with PFRS: Current NAIP (2021–2025) does not explicitly integrate fisheries and aquaculture into objectives, budgeting, or monitoring, missing opportunities for alignment with the PFRS.

5. Emerging Opportunities: Potential exists through value chain investment, public-private partnerships, and collaboration with FAO, AU-IBAR, and GFCM to enhance aquaculture development and governance.





SUMMARY ASSESSMENT OF ALIGNMENT OF **LIBYA'S NAIP WITH PFRS**

Partial Alignment in Policy Area 1: Conservation and Sustainable Resource Use

Libya's NAIP includes indirect support through water and environmental goals but lacks explicit strategies or investment for fisheries, marine ecosystems, and responsible aquatic resource management. The isolated approach hinders integrated, ecosystem-based planning for sustainable aquaculture and biodiversity conservation.

Partial Alignment Policy Area 5: Regional and Sub-Regional Cooperation Libya participates in regional platforms (GFCM, WestMED, AOAD, COMESA), but NAIP lacks specific commitments to regional fisheries protocols or alignment with continental strategies like CAADP or PFRS.

No Alignment in Policy Area **2A: Small-Scale Fisheries** Development

The NAIP lacks specific objectives or investment priorities for small-scale fishers. No reference to cooperatives, artisanal fishing infrastructure, or targeted livelihood programs. This limits opportunities for food security and rural employment through coastal fisheries

No Alignment in Policy Area 3: Sustainable Aquaculture: Aquaculture is not explicitly prioritized in Libya's NAIP, with no dedicated investments in hatcheries, feed production, or modern systems like RAS. While infrastructure and water-saving targets may indirectly benefit the sector, fragmented support and lack of planning hinder its development.

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No Alignment in Policy Area 4: **Responsible and Equitable Fish** Trade and Marketing No

recognition of fisheries or aquaculture value chains. Market development goals are directed at agriculture and livestock. Libya remains unaccredited for EU fish exports due to regulatory and quality gaps; fish trade frameworks are absent in NAIP and not aligned with COMESA/AU protocols.

Development High seas access and Fisheries training governance are not programs exist (e.g., addressed in NAIP. No through NPA), but there is reference to UNCLOS, no inclusion of sector-PSMA, or cooperation specific capacity building with RFMOs, despite in NAIP training and Libya's Mediterranean education priorities EEZ and membership in ICCAT..

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No Alignment in: **No Alignment Policy Area Policy Area 7: High Seas 6** Awareness and Capacity Fisheries

No Alignment with PFRS Policy Area 8 : Libya's

climate adaptation and investment plans overlook fisheries and aquaculture, with no targeted measures for climate impacts like rising sea temperatures or coastal erosion. Additionally, there are no gender- or youth-focused blue economy initiatives linked to the NAIP.

Opportunities for integrating fisheries and aquaculture into Libya's (NAIP) and strategic agricultural policy:

Leveraging "Blue Economy Platforms":

Promoting water-smart aquaculture:

KEY MESSAGES: INTEGRATING FISHERIES & AQUACULTURE INTO LIBYA'S NAIP

Improving Coordination and Data Systems:

> Integrating fisheries into revised NAIP and National Development Plans NDP:

Strengthening Climate and SDG Integration:

Aligning with CAADP and PFRS principles:

Enhancing Public–Private Partnerships (PPPs):





STRENGTHS:

Rich marine resources (1,900 km coastline) suitable for fisheries and cage aquaculture. Commitment to international conventions (UNCLOS, PSMA) and regional cooperation (GFCM, WestMED). Institutional progress via the National Project for Aquaculture (NPA).

Growing political interest in blue economy and food security.

WEAKNESSES:

Fragmented governance and overlapping mandates across ministries.

Outdated legal frameworks not aligned with climate or sustainability standards.

Weak infrastructure (landing sites, hatcheries, cold chains).

Poor coordination, stakeholder engagement, and data/monitoring systems.

Opportunities:

NAP frameworks. species). and innovation.

SWOT

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- Integrating fisheries/aquaculture into NAIP, NDC, and
- Adoption of resilient technologies (RAS, salt-tolerant
- Potential for PPPs and donor-supported rehabilitation
 - Regional collaboration and knowledge sharing (e.g., GFCM 2030, WestMED).

Threats:

- Climate change impacts: coastal erosion, warming seas, extreme weather.
- Ongoing political and economic instability delays reform and investment.
- Prevalence of unregulated fishing and weak
- traceability affects exports.
- Fisheries largely absent from key national
- development and climate agendas.

CONCLUSION

Missed Integration in National Frameworks

Libya's fisheries and aquaculture sectors remain underrepresented in national development plans, climate strategies, and agricultural investment frameworks, limiting their resilience and potential.

Systemic Institutional Gaps

Weak inter-ministerial coordination, outdated policies, poor data systems, and limited targeted investment hinder effective climate adaptation and sector governance.

High Vulnerability to Climate Change

Artisanal fishers and coastal communities face increasing climate risks (e.g., salinization, sea-level rise) with little institutional support or adaptation infrastructure in place.

Opportunity for Blue Economy Transformation

With regional partnerships, resilient technologies, and strategic reforms, Libya can turn climate and economic challenges into a pathway for sustainable blue economy development.



Summary of KEY climate change recommendations for Libya's fisheries and aquaculture sector:

Focus Area	Recommendation
olicy Integration	Include fisheries/aquaculture in NDCs, NAP climate policies
ntegrate sector-specific adaptation neasures	Design sector-specific adaptation strategies (e.g., storm mitigation, temperature resilience
nstitutional Capacity	Train officials; develop climate-smart governance frameworks
Ionitoring and Research	Develop monitoring systems; collaborate wit scientific partners
limate-Smart Aquaculture	Promote innovative systems (RAS, solar, offshore cages)
cosystem Protection	Safeguard critical habitats; implement marine spatial planning
takeholder Collaboration	Facilitate multi-stakeholder dialogue and planning
arly Warning Systems	Establish marine hazard alert platforms
egional Cooperation	Strengthen collaboration with GFCM, WestMED, AU-IBAR
	Mobilize GCF, Adaptation Fund, FAO support

climate financing mechanisms

Expected Outcome

°S,	Climate-sensitive sectors prioritized in national adaptation plans
s ce)	Increased adaptive capacity and reduced losses in fisheries/aquaculture
	Improved planning, implementation, and resilience at all levels
th	Data-driven decisions and timely climate response
	Enhanced productivity and sustainability in aquaculture
е	Biodiversity preservation and long-term ecosystem health
	Inclusive adaptation strategies and better coordination
	Protection of livelihoods and infrastructure
	Policy alignment, shared strategies, and technical support
ť	Investment in infrastructure, innovation, and support for vulnerable producers



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THANK YOU

