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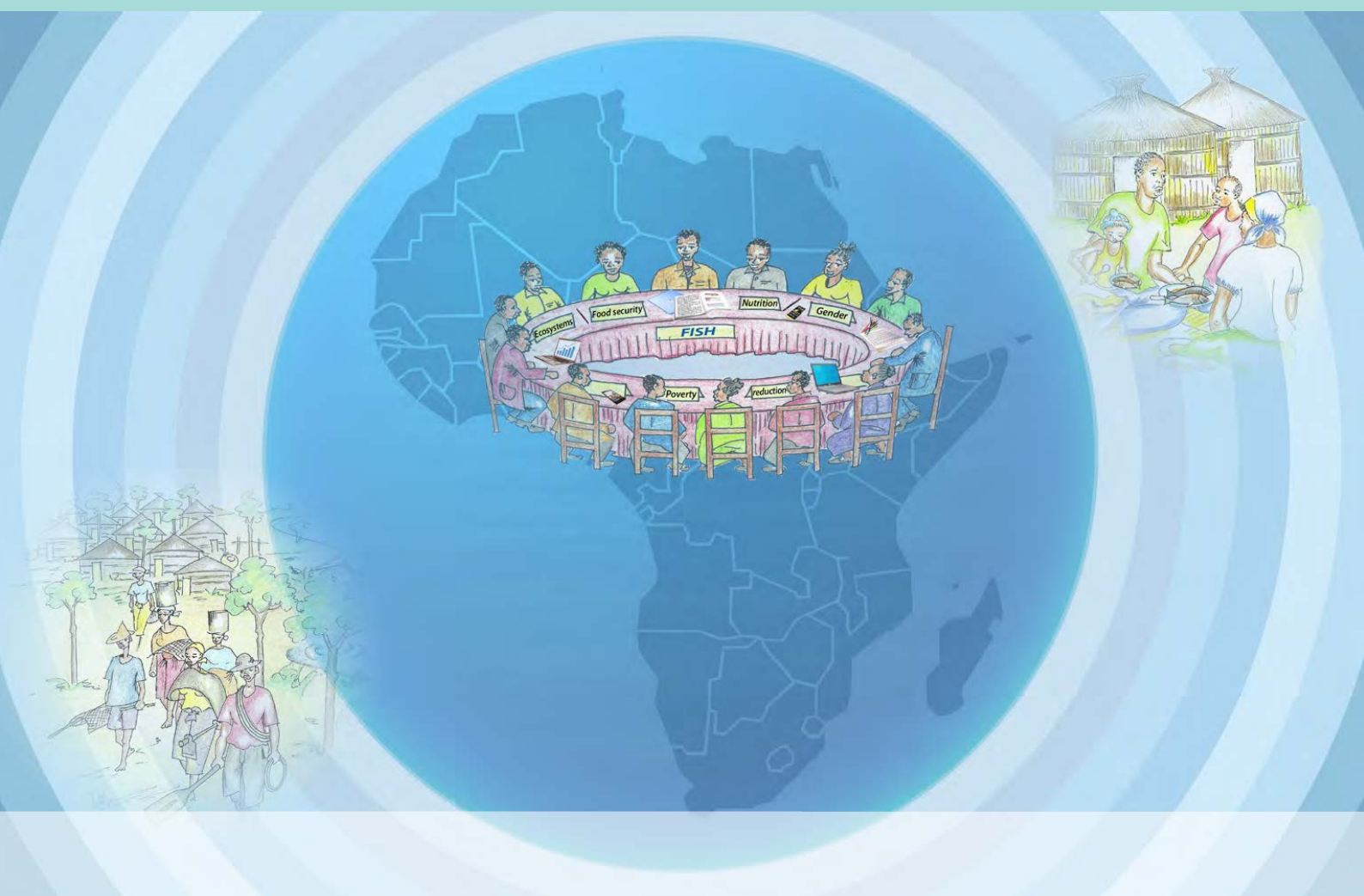
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Assessment of the integration of fisheries and aquaculture in policy development

Framework and application in Africa



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by

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Preparation of this document

This document was prepared within the framework of FAO's Strategic Objective 1 (SO1): Help eliminate hunger, food insecurity and malnutrition.

The first draft of this document served as a background paper for the Consultative Meeting on "Improving Policy Development in Aquaculture in Support of Food Security, Nutrition and Poverty Eradication", held in Addis Ababa, Ethiopia, from 3 to 4 December 2018.

As a follow up to the Addis Ababa meeting and the 37th Southern Africa Development Community (SADC) fisheries and aquaculture technical meeting in Windhoek, Namibia, the second draft was prepared and served as a background paper for the Second Consultative Meeting on "Improving Policy Development in Aquaculture in Support of Food Security, Nutrition and Poverty Eradication", held in Kigali, Rwanda, from 10 to 14 June 2019.

The Consultative Meeting was convened to make recommendations to guide the mainstreaming of fisheries and aquaculture within wider policy frameworks for the formulation and implementation of technical programmes for enhanced food security and nutrition at the country and regional level in Africa.

Abstract

This paper aims at assisting African countries and Regional Economic Communities to improve the integration of the fisheries and aquaculture sector into their policy documents that deal with poverty eradication, foreign currency generation, food security, ecosystem approach to fisheries and to aquaculture, and gender mainstreaming. For this purpose, the paper assesses whether the fisheries and aquaculture sector is adequately embedded in policy documents in Africa at both the country and regional level.

The analysis addressed 54 African countries and 8 Regional Economic Communities. As a policy assessment tool, the multi-criteria analysis has been applied to compare two options – “relevance” and “inclusion” – across several performance dimensions. Based on the assessments performed, the extent of “integration” and “discrepancy” of the fishery and aquaculture sector in policy documents has been calculated.

The relevance of fisheries and aquaculture has been assessed through the selection of these three indicators: per capita consumption of fish and fishery products; fish share in animal protein; and fishery exports as a percentage of agricultural exports. Countries have been ranked accordingly. An overview of existing policy documents has been provided. Through a qualitative analysis, the extent of inclusion of fisheries and aquaculture in policy documents aimed at, *inter alia*, poverty eradication, foreign currency generation, food security, sustainable development and gender mainstreaming has been assessed. Through the combination of the relevance and inclusion results, this study analysed both the extent of the integration of fisheries and aquaculture in policy documents and discrepancy. The proposed approach allowed for identifying countries whose fisheries and aquaculture sector is, to a great extent, included in their policy documents and verifying a corresponding attitude of importance ascribes to this sector in the growth and development agenda. Conversely, some countries, while the relevance of the fisheries and aquaculture sector has been assessed as relevant from the quantitative analysis, have either not adequately included fisheries and aquaculture in their policy documents for growth and development or have omitted their inclusion altogether. These countries highlighted the discrepancy between relevance and inclusion. Therefore, recommendations will be suggested to improve, through advocacy, the inclusion of policy documents on fisheries and aquaculture.

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Acronyms and abbreviations

AU	African Union
CAADP	Comprehensive Africa Agriculture Development Programme
CEN-SAD	Community of Sahel-Saharan States
COFI	Committee on Fisheries
COMESA	Common Market for Eastern and Southern Africa
CPF	Country Programming Framework
EAA	Ecosystem Approach to Aquaculture
EAC	East African Community
EAF	Ecosystem Approach to Fisheries
ECCAS	Economic Community of Central African States
ECOWAS	Economic Community of West African States
FAO	Food and Agriculture Organization of the United Nations
FC	apparent per capita consumption of fish and fishery product
FC_{SCORE}	score of the apparent per capita consumption of fish and fishery product
FE	fishery exports as a percentage of agricultural exports
FE_{SCORE}	score of the fishery exports as a percentage of agricultural exports
FEG	foreign exchange generation
FEG_{SCORE}	score of the foreign exchange generation
FOOD	food security
FOOD_{SCORE}	score of the food security
FS	fish share in animal protein
FS_{SCORE}	score of the fish share in animal protein
GDP	gross domestic product
GEN	gender mainstreaming
GEN_{SCORE}	score of the gender mainstreaming
IDFA	Indicator of Discrepancy of Fisheries and Aquaculture in the policy documents
IDFA_{FEG}	Foreign Exchange Generation-Based Indicator of Discrepancy of Fisheries and Aquaculture
IDFA_{FOOD}	Food Security-Based Indicator of Discrepancy of Fisheries and Aquaculture
IDFA_{GEN}	Gender Mainstreaming-Based Indicator of Discrepancy of Fisheries and Aquaculture
IDFA_{POV}	Poverty Eradication-Based Indicator of Discrepancy of Fisheries and Aquaculture
IDFA_{SUST}	Sustainable Ecosystem-Based Indicator of Discrepancy of Fisheries and Aquaculture
IGAD	Intergovernmental Authority on Development
IIFA	Indicator of Inclusion of Fisheries and Aquaculture in the policy documents

IINFA	Indicator of Integration of Fisheries and Aquaculture
IINFA_{FEG}	Foreign Exchange Generation-Based Indicator of Integration of Fisheries and Aquaculture
IINFA_{FOOD}	Food Security-Based Indicator of Integration of Fisheries and Aquaculture
IINFA_{GEN}	Gender Mainstreaming-Based Indicator of Integration of Fisheries and Aquaculture
IINFA_{POV}	Poverty Eradication-Based Indicator of Integration of Fisheries and Aquaculture
IINFA_{SUST}	Sustainable Ecosystem-Based Indicator of Integration of Fisheries and Aquaculture
IMF	International Monetary Fund
IRFA	Indicator of Relevance of Fisheries and Aquaculture
NEPAD	New Partnership for Africa's Development
NMTPF	National Mid-Term Priority Framework
NPCA	New Partnership for Africa's Development Planning and Coordinating Agency
POV	poverty eradication
POV_{SCORE}	score of the poverty eradication
PRSP	Poverty Reduction Strategy Paper
REC	Regional Economic Community
SADC	Southern Africa Development Community
SDG	Sustainable Development Goal
SUST	sustainable ecosystem
SUST_{SCORE}	score of the sustainable ecosystem
UMA	Arab Maghreb Union
UNDAF	United Nations Development Assistance Framework
WSFS	World Summit on Food Security

1. Introduction

This paper aims at assisting African countries and Regional Economic Communities (RECs) to improve the integration of the fisheries and aquaculture sector into their policy documents that deal with poverty eradication, foreign currency generation, food security, ecosystem approach to fisheries and to aquaculture, and gender mainstreaming. It provides practical guidance for fisheries and aquaculture policy-makers and implementers on policy analysis. For this purpose, the paper assesses whether the fisheries and aquaculture sector is adequately embedded in policy documents in Africa at both the country and regional level. Chapter 2 contains a description of the proposed methodology. A general overview is provided in Chapter 3 of the fisheries and aquaculture sector in Africa at the country and regional level through the analysis of secondary data. Chapter 4 assesses the relevance of the fisheries and aquaculture sector through the selection of the following three indicators: per capita consumption of fish and fishery products, fish share in animal protein, and fishery exports as a percentage of agricultural exports. Chapters 5 and 6 provide an overview of existing policy documents and evaluate, through a qualitative analysis, the extent of inclusion, integration and discrepancy of fisheries and aquaculture in policy documents aimed at, *inter alia*, poverty eradication, foreign currency generation, food security, sustainable development and gender mainstreaming. To ensure the quality evaluation per theme, over 300 documents have been reviewed. The regional level has been analysed through the RECs. Chapter 7 summarizes the major findings of the study and the most relevant implications for policy-makers. Recommendations were proposed at the country and regional level for improvements and to fill the gaps outlined in Chapter 8, based on the performed assessment and the outcomes of the Second Consultative Meeting on “Improving Policy Development in Aquaculture in Support of Food Security, Nutrition and Poverty Eradication”, held in Kigali, Rwanda, from 10 to 14 June 2019.

This document is one of a series of FAO fisheries and aquaculture publications dedicated to aquaculture planning and governance. Four FAO Fisheries and Aquaculture Technical Papers have already been published on this topic: *Aquaculture Planning: Policy Formulation and implementation for sustainable development* (Brugère *et al.*, 2010); *Policy and Governance in Aquaculture: Lessons Learned and Way Forward* (Hishamunda, Ridler and Martone, 2014); *Improving Governance in Aquaculture Employment: A Global Assessment* (Hishamunda *et al.*, 2014); and *Contract Farming and Public-Private Partnerships in Aquaculture: Lessons Learned from East African countries* (Murekezi, Menezes and Ridler, 2018). Also published were the FAO Technical Guidelines for Responsible Fisheries addressing the topic of governance and aquaculture development (FAO, 2017a) and the FAO Voluntary Guidelines on small-scale fisheries sustainable development (FAO, 2015; FAO, 2018a).

2. Methodology

The purpose of the analysis performed is to assess whether the fisheries and aquaculture sector is adequately embedded into African national and regional policy documents. The analysis addressed 54 African countries and 8 RECs (Annex 9).

A multi-criteria analysis (MCA) has been applied as a policy assessment tool to determine the levels of relevance of the fisheries and aquaculture sector and inclusion of fisheries and aquaculture in policy documents across several performance dimensions. Based on the assessments that were performed, the extent of the integration of the fishery and aquaculture sector in policy documents and the discrepancy between relevance and inclusion have been calculated.

Based on a set of identified objectives, the MCA allows for determining preferences between options and assessing the achievement of these objectives through measurable performance dimensions. In a standard MCA performance matrix, each row contains an option, each column explains the performance of the options against each performance dimensions, and the entries assess each option performance with reference to each performance dimension (Department for Communities and Local Government, 2009).

It should be pointed out that the methodology that is proposed relies on “the judgement of the decision-making team, in establishing objectives and criteria, in estimating relative importance weights and, to some extent, in judging the contribution of each option to each performance criterion” (Department for Communities and Local Government, 2009). Direct rating judgements have been applied to score the performance dimensions. These important methodological reservations could bias the results. However, according to current information, this work is the first attempt to quantify the degree of commitment of policy documents to the selected themes, functioning as a potential platform for further improvements.

In case the policy documents do not adequately reflect the actual socio-economic importance of the fisheries and aquaculture sector at the country and regional levels (i.e. relevance), forgone net benefit could occur as a result of lost development opportunities across multiple sectors. While this type of quantitative analysis extends beyond the scope of this work, it could form a part of future research projects. Primarily directed to policy-makers and planning experts in Africa, this study highlights that the fisheries and aquaculture sector is not adequately encompassed in policy documents, a gap which could be filled in the near future.

The proposed methodology adopted two levels of analysis: quantitative and qualitative. The quantitative analysis attempted to determine the relevance of the fisheries and aquaculture sector at the country and regional level (section 2.1). The qualitative analysis assessed the degree of inclusion of fisheries and aquaculture into policy documents in the selected themes (section 2.2). By combining the two levels of results, it was possible to assess the extent of integration of the fisheries and aquaculture sector in policy documents for each of the analysed themes, at the country and regional level (section 2.3), along with the discrepancy between relevance and inclusion (section 2.4).

2.1 RELEVANCE OF THE FISHERIES AND AQUACULTURE SECTOR

According to the proposed methodology, the study first assessed the “relevance” of fisheries and aquaculture at the country and regional level (Chapter 4). As performance dimensions, the following indicators have been considered to quantify the sector’s importance on food security and the economy (Table 1):

- Apparent per capita consumption of fish and fishery products (FC) estimated by dividing the total supply available for human consumption (TFC) by the population total.¹
- Fish share in animal protein (FS) measures the ratio of the protein supply quantity of foods such as fish, seafood, aquatic animals and others on animal protein supply quantity.
- Fishery exports as a percentage of agricultural exports (FE) measures the ratio of fishery commodities exports on all agricultural product exports.

TABLE 1

List of selected indicators to assess the relevance of fisheries and aquaculture at the country level

Symbol	Indicator	Definition	Unit	Year	Source
FC	Apparent per capita consumption of fish and fishery product	The estimate of the total supply available for human consumption divided by the population total	kg/per capita/year	2013	FAO, 2017b
FS	Fish share in animal protein	The ratio of fish proteins (grams per capita per day) on animal proteins (grams per capita per day)	Percentage	2013	FAO, 2017b
FE	Fishery exports as a percentage of agricultural exports	The ratio of fishery commodities exports on all agricultural products exports	Percentage	2013	FAO, 2018b; 2018c

Notes: FC = apparent per capita consumption of fish and fishery products; FE = Fishery exports as a percentage of agricultural exports; FS = fish share in animal protein.

These indicators were selected as proxies to assess the importance of the fisheries and aquaculture sector in terms of contribution to food security and nutrition (FC and FS) and to the country's economic growth (FE) (Cai, Leung and Hishamunda, 2009; Bondad-Reantaso and Subasinghe, 2013; FAO, 2016). Unfortunately, it was not possible to include the labour dimension since data are available only at the regional level.






The countries were then classified under each performance dimension (i.e. FC, FS and FE) and scored into five categories by comparing data at the country level to the corresponding African average level. The scoring methodology has been proposed for each indicator based on direct rating judgements (Table 2). For example, as shown in Annex 5, FC in Africa was 10.1 kg/per capita in the reference year (2013); this value represents the African average level for FC. Countries without data are given a 0 score, whereas those with less than 5 kg/per capita per year are assigned a low-level score. The countries with 5–10 kg/per capita per year are assigned a medium-level score, while countries with 10–15 kg/per capita per year are given a high-level score. The very high-level score is reserved for those countries having more than 15 kg/per capita per year.

For each country, the Indicator of Relevance of Fisheries and Aquaculture (IRFA) is calculated by summing the scores of each indicator, as shown in Equation 1: the scores of the apparent per capita consumption of fish and fishery product (FC_{SCORE}), the fish share in animal protein (FS_{SCORE}), and the fishery exports as a percentage of agricultural exports (FE_{SCORE}). Identical numerical weights have been assigned to all three indicators since this work envisaged no explicit trade-off among performance dimensions.

$$IRFA = FC_{SCORE} + FS_{SCORE} + FE_{SCORE} \quad (1)$$

¹ TFC is derived by the FAO Food Balance Sheet (FBS) of fish and fishery products in live weight tonnes by using the following equation: production less reduction to meal and other non-food uses, plus imports, less exports and re-exports, plus or less variation in stocks (FAO, 2017b).





TABLE 2
Scoring methodology to assess the relevance of fisheries and aquaculture by indicator

Score	Symbol	Level	Criteria	
0		Na	Country level (CL) indicator not available	
1		Low	CL indicator below half of African average level (AAL):	$CL < 0.5 \text{ AAL}$
2		Medium	CL indicator between half of AAL and AAL:	$0.5 \text{ AAL} \leq CL < \text{AAL}$
3		High	CL indicator between AAL and 1.5 times AAL:	$\text{AAL} \leq CL < 1.5 \text{ AAL}$
4		Very high	CL indicator above 1.5 times AAL:	$CL \geq 1.5 \text{ AAL}$

Notes: AAL = African average level; CL = country level; na = not available.

In terms of relevance of fisheries and aquaculture, the countries were then ranked into five categories according to the methodology proposed in Table 3. If no scores were assigned to all the indicators (i.e. FC, FS and FE), the relevance of fisheries and aquaculture is negligible. The ranking levels have been assigned to the upper end of the IRFA interval as follows: if the scores of FC, FS and FE are not available, then IRFA is negligible; if the scores of FC, FS and FE are all low (i.e. each indicator score equal to 1), then IRFA is low (i.e. upper end of the IRFA interval less than or equal to 3) and so forth, for a maximum of 12.

TABLE 3
Methodology to rank the relevance of fisheries and aquaculture

Symbol	Level	Criteria	
	Negligible	IRFA equal to zero	$\text{IRFA} = 0$
	Low	IRFA between 1 (not included) and 3 (included)	$0 < \text{IRFA} \leq 3$
	Medium	IRFA between 3 (not included) and 6 (included)	$3 < \text{IRFA} \leq 6$
	High	IRFA between 6 (not included) and 9 (included)	$6 < \text{IRFA} \leq 9$
	Very high	IRFA between 9 (not included) and 12 (included)	$9 < \text{IRFA} \leq 12$

Notes: IRFA = Indicator of Relevance of Fisheries and Aquaculture.

After the scoring and ranking methodology was applied at the country level to assess the relevance of fisheries and aquaculture, the scoring analysis was carried out at the REC level using the mean score for the selected indicators. It must be stressed that this approach faces inevitable limitations, the main one being the overlapping membership, as many RECs include the same countries, thereby skewing the overall

effectiveness of the performed assessment. However, to minimize such limitations, the relevance of the fisheries and aquaculture has been assessed for each REC.

2.2 INCLUSION OF FISHERIES AND AQUACULTURE IN POLICY DOCUMENTS






In the second phase, policy documents from each country and REC were reviewed to assess how (and whether) the fisheries and aquaculture sector is incorporated into them. A total of 224 policy documents were reviewed for all African countries and 12 for the RECs. The list of reviewed policy documents is available in Annex 10. It must be stressed that the number and reference period of the reviewed policy documents can bias the assessment since some countries had several documents reviewed (up to 10), while others had no documents reviewed. Therefore, this analysis could be defined as a subjective qualitative assessment.

Given the above-mentioned methodological caveats, the policy documents were used to assess to what extent the policy-makers had valued the fisheries and aquaculture sector in promoting five themes: poverty eradication (POV), foreign exchange generation (FEG), food security (FOOD), sustainable ecosystem (SUST) and gender mainstreaming (GEN).

The proposed methodology assessed the “inclusion” of fisheries and aquaculture in the national and regional policy documents. For this purpose, the documents were first assessed to ascertain the extent to which they made reference to the fishery and aquaculture sector. If this was the case, the analysis focused on how the policy documents proposed to spur growth and development, particularly in treating with the five themes of this study, i.e. POV, FEG, FOOD, SUST and GEN. In analysing the policy documents, the number of documents mentioning fisheries and aquaculture in the context of the five themes was verified. Next, the analysis determined the extent to which the fisheries and aquaculture sector was deemed important enough to be incorporated and used within the strategic framework to realize the objectives under the five themes.

The policy documents, scored under the five themes mentioned above – POV, FEG, FOOD, SUST and GEN – followed the scoring methodology proposed in Table 4. A score was assigned to each country and REC based on the extent to which the inclusion of the fisheries and aquaculture sector was reflected in form and substance in the policy documents that addressed these five themes. In the proposed approach, the assigned

TABLE 4
Scoring methodology to assess the inclusion of fisheries and aquaculture in the policy documents by theme

Score	Symbol	Level	Criteria
0		Negligible	No importance or mention of the fisheries and aquaculture sector in policy documents in promoting the theme.
1		Low	The policy documents mention the contribution of the fisheries and aquaculture sector to the theme but no further analysis is provided.
2		Medium	The policy documents mention the contribution of the fisheries and aquaculture sector to the theme and analyse the likely impacts.
3		High	The policy documents attempt to quantify the contribution of the fisheries and aquaculture sector to the theme and compare it to other sectors.
4		Very high	The policy documents quantify the contribution of the fisheries and aquaculture sector to the theme, compare it to other sectors and take into consideration the fishery and aquaculture sector with clear proposals, e.g. goals, priorities and outcomes.

score refers to the highest score assigned to one or more documents and not to the overall assessment of all the reviewed documents.






The scoring methodology has been proposed for each indicator based on direct rating judgements (Table 4). The score “negligible” (0) is given to countries and RECs where there is little or no mention of the fisheries and aquaculture sector promoting the themes. In order to assign the score of “very high”, the examined policy documents must include an evaluation and/or assessment of the current situation of the fisheries and aquaculture sector and indicate consideration of the fisheries and aquaculture sector with clear policy proposals for action, e.g. goals, priorities and outcomes.

For each country, the Indicator of Inclusion of Fisheries and Aquaculture (IIFA) in the policy documents is calculated by adding the scores assigned to each theme, as shown in Equation 2: poverty eradication (POV_{SCORE}), foreign exchange generation (FEG_{SCORE}), food security ($FOOD_{SCORE}$), sustainable ecosystem ($SUST_{SCORE}$) and gender mainstreaming (GEN_{SCORE}). Identical numerical weights have been assigned to all themes.

$$IIFA = POV_{SCORE} + FEG_{SCORE} + FOOD_{SCORE} + SUST_{SCORE} + GEN_{SCORE} \quad (2)$$

In terms of inclusion of fisheries and aquaculture in the policy documents, the countries and RECs were then ranked into five categories according to the methodology proposed in Table 5. If no scores were assigned to all the themes (i.e. POV, FEG, FOOD, SUST and GEN), the inclusion results as negligible. The ranking levels were assigned to the upper end of the IIFA interval as follows: if the scores of POV, FEG, FOOD, SUST and GEN are all negligible, then IIFA is negligible; if the scores of POV, FEG, FOOD, SUST and GEN are all low (i.e. each indicator score equal to 1), then IIFA is low (i.e. upper end of the IIFA interval less than or equal to 5) and so forth, for a maximum rank of 20. A high rank indicates that at least one document of the country or REC fully acknowledged that the fisheries and aquaculture sector contributed to the themes and had robust policy proposals.

TABLE 5
Methodology to rank the inclusion of fisheries and aquaculture

Symbol	Level	Criteria	
	Negligible	IIFA equal to 0	$IIFA = 0$
	Low	IIFA between 1 (not included) and 5 (included)	$0 < IIFA \leq 5$
	Medium	IIFA between 5 (not included) and 10 (included)	$5 < IIFA \leq 10$
	High	IIFA between 10 (not included) and 15 (included)	$10 < IIFA \leq 15$
	Very high	IIFA between 15 (not included) and 20 (included)	$15 < IIFA \leq 20$

Notes: IIFA = Indicator of Inclusion of Fisheries and Aquaculture.

2.3 INTEGRATION OF FISHERIES AND AQUACULTURE IN POLICY DOCUMENTS

In the final phase, IRFA with IIFA were compared to indicate the relationship between the relevance of the fisheries and aquaculture sector at the country and regional level and the inclusion of the sector in the policy documents.

The Indicator of Integration of Fisheries and Aquaculture (IINFA) is proposed to evaluate the extent of “integration” of the fisheries and aquaculture sector in policy documents for each of the analysed themes. The methodological approach was to add IIFA to IRFA. As shown in Equation 3, IINFA is calculated by adding the scores for IRFA and IIFA. In the countries where fisheries and aquaculture are important at the country and/or regional level and are highly included into policy documents, the submission is that fisheries and aquaculture may be deemed a “consolidated” sector, as the level of relevance ascribed to the sector is reinforced by their inclusion in policy documents touching and concerning the selected thematic areas.

$$\text{IINFA} = \text{IRFA} + \text{IIFA} \quad (3)$$

The lowest rank for IINFA is 0 and the highest rank is 32, given by the sum of the maximum rank of IRFA, which is 12 (Table 3), and the maximum rank of IIFA, which is 20 (Table 5). The integration has been also assessed for each theme by calculating specific theme-based indicators.

The Poverty Eradication-Based Indicator of Integration of Fisheries and Aquaculture (IINFA_{POV}) is calculated by adding the scores for IRFA and POV_{SCORE}, as shown in Equation 4.

$$\text{IINFA}_{\text{POV}} = \text{IRFA} + \text{POV}_{\text{SCORE}} \quad (4)$$

The Foreign Exchange Generation-Based Indicator of Integration of Fisheries and Aquaculture (IINFA_{FEG}) is calculated by adding the scores for IRFA and FEG_{SCORE}, as shown in Equation 5.

$$\text{IINFA}_{\text{FEG}} = \text{IRFA} + \text{FEG}_{\text{SCORE}} \quad (5)$$

The Food Security-Based Indicator of Integration of Fisheries and Aquaculture (IINFA_{FOOD}) is calculated by adding the scores for IRFA and FOOD_{SCORE}, as shown in Equation 6.

$$\text{IINFA}_{\text{FOOD}} = \text{IRFA} + \text{FOOD}_{\text{SCORE}} \quad (6)$$

The Sustainable Ecosystem-Based Indicator of Integration of Fisheries and Aquaculture (IINFA_{SUST}) is calculated by adding the scores for IRFA and SUST_{SCORE}, as shown in Equation 7.

$$\text{IINFA}_{\text{SUST}} = \text{IRFA} + \text{SUST}_{\text{SCORE}} \quad (7)$$

The Gender Mainstreaming-Based Indicator of Integration of Fisheries and Aquaculture (IINFA_{GEN}) is calculated by adding the scores for IRFA and GEN_{SCORE}, as shown in Equation 8.

$$\text{IINFA}_{\text{GEN}} = \text{IRFA} + \text{GEN}_{\text{SCORE}} \quad (8)$$

For each theme, the highest a country and/or REC could be ranked in score is 16 and the lowest being 0. The maximum rank for the specific Theme-Based Indicator of Integration of Fisheries and Aquaculture is 16, given by the sum of the maximum rank of IRFA, which is 12 (Table 3), and the maximum score of the Theme-Based Indicator of Inclusion of Fisheries and Aquaculture, which is 4 (Table 4). An overall assessment of all the themes of this study is presented in section 5.1. This global assessment is based on adding the individual scores for each of the themes for each country and REC.

2.4 DISCREPANCY BETWEEN THE FISHERY AND AQUACULTURE SECTOR AND POLICY DOCUMENTS

It should be noted that IINFA can provide minimal guidance to policy-makers in terms of formulating future policies because a high rank is conceivable even without much inclusion (IIFA), if the role of the fisheries and aquaculture sector is relevant (IRFA). Within this scenario, deducting IRFA from IIFA could be more informative for policy-makers.

To determine whether there is a relationship between IRFA and IIFA, an estimate is made through the proposed Indicator of Discrepancy of Fisheries and Aquaculture (IDFA) in the policy documents, a complementary indicator to IINFA. As shown in Equation 9, IDFA is calculated by subtracting the scores for IRFA to IIFA.

$$IDFA = IRFA - IIFA \quad (9)$$

IDFA ranks higher for those countries and RECs where the fisheries and aquaculture sector is considered important, but the inclusion in policy documents is poor. This result suggests a need for more explicit incorporation of the fisheries and aquaculture sector into policies.

The highest value for IDFA is 12, which indicates very high relevance of fisheries and aquaculture (IRFA), but a negligible inclusion of the sector in the reviewed policy documents (IIFA). On the opposite side, the lowest value can also be -20, which indicates the countries where the sector assumes negligible relevance but where there is a very high inclusion.

The discrepancy has also been assessed for each theme by calculating specific theme-based indicators. For each theme, the highest a country and/or REC could be ranked in score is 12 with the lowest being -4. The minimum rank for the specific Theme-Based Indicator of Discrepancy of Fisheries and Aquaculture is -4, given by the maximum score of the Theme-Based Indicator of Inclusion of Fisheries and Aquaculture, which is 4 (Table 4), and the minimum rank of IRFA, which is 0 (Table 3).

The Poverty Eradication-Based Indicator of Discrepancy of Fisheries and Aquaculture ($IDFA_{POV}$). $IDFA_{POV}$ is calculated by subtracting the scores for IRFA to POV_{SCORE} , as shown in Equation 10.

$$IDFA_{POV} = IRFA - POV_{SCORE} \quad (10)$$

The Foreign Exchange Generation-Based Indicator of Discrepancy of Fisheries and Aquaculture ($IDFA_{FEG}$). $IDFA_{FEG}$ is calculated by subtracting the scores for IRFA to FEG_{SCORE} , as shown in Equation 11.

$$IDFA_{FEG} = IRFA - FEG_{SCORE} \quad (11)$$

The Food Security-Based Indicator of Discrepancy of Fisheries and Aquaculture ($IDFA_{FOOD}$). $IDFA_{FOOD}$ is calculated by subtracting the scores for IRFA to $FOOD_{SCORE}$, as shown in Equation 12.

$$IDFA_{FOOD} = IRFA - FOOD_{SCORE} \quad (12)$$

The Sustainable Ecosystem-Based Indicator of Discrepancy of Fisheries and Aquaculture ($IDFA_{SUST}$) is calculated by subtracting the scores for IRFA to $SUST_{SCORE}$, as shown in Equation 13.

$$IDFA_{SUST} = IRFA - SUST_{SCORE} \quad (13)$$

The Gender Mainstreaming-Based Indicator of Discrepancy of Fisheries and Aquaculture (IDFA_{GEN}) is calculated by subtracting the scores for IRFA to GEN_{SCORE}, as shown in Equation 14.

$$\text{IDFA}_{\text{GEN}} = \text{IRFA} - \text{GEN}_{\text{SCORE}} \quad (14)$$

3. An overview of fisheries and aquaculture in Africa

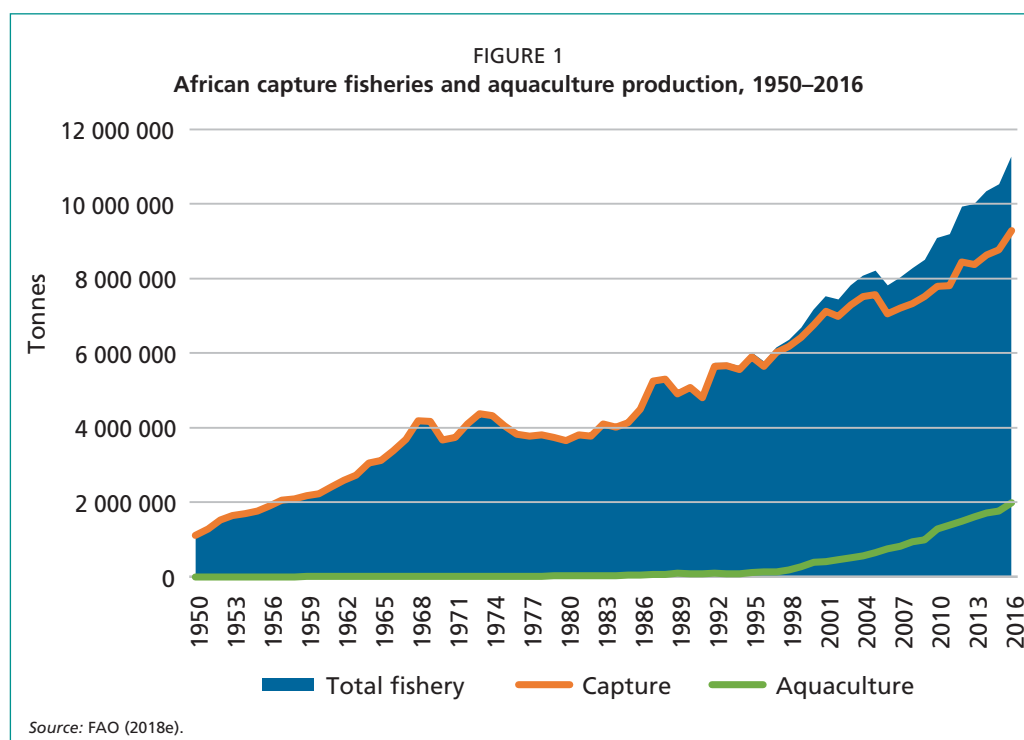
This chapter provides an overview of the fisheries and aquaculture sector in Africa at the country and regional level through secondary data. An assessment of African policies concerning the role of fisheries and aquaculture in poverty eradication, foreign currency generation, food security, the ecosystem approach to fisheries and to aquaculture and gender mainstreaming has to account for the dynamic nature of these themes, which address environments that are constantly and rapidly changing.

The most recent FAO fisheries and aquaculture statistics at the time of writing refer to 2016; therefore, they do not reflect the current situation perfectly. However, because data are available from 1950, these statistics do provide some useful indications regarding the sector's dynamics and its likely evolution in the coming years.

In this work, aquaculture and capture fisheries statistics refer to “food fish”, which includes finfishes, crustaceans, molluscs, amphibians, freshwater turtles and other aquatic animals (such as sea cucumbers, sea urchins, sea squirts and edible jellyfish), produced for, or intended for, human consumption.

3.1 FISHERIES AND AQUACULTURE PRODUCTION AT THE COUNTRY AND REGIONAL LEVEL

In Africa, the trend of capture fisheries production has demonstrated an important and steady growth from 1950 to the late 1960s, when most African countries gained their independence. During this period, the annual production of capture fisheries grew from 1 million to 4 million tonnes. Although production declined slightly during the second half of the 1970s, growth resumed in 1980. Since 2000, capture fisheries production has almost doubled annually (Figure 1).



In 2016, 15 top African countries accounted for 79 percent of the total African capture fisheries production (Table 6). These 15 countries also comprise 56 percent of the African population and account for 68 percent of the African gross domestic product (GDP) at constant 2010 United States dollars (elaboration of the authors based on FAO, 2018d; World Bank, 2018).

The average growth of African capture fisheries production during the period 2007–2016 was 2.6 percent annually (Table 6), a figure slightly higher than the average annual population growth in Africa during this period (2.3 percent) (elaboration of the authors based on FAO, 2018d).

Although the practice of aquaculture has been around since ancient times, especially in Egypt, it was not introduced in Africa until the end of World War II (UNDP/FAO/ARAC, 1987). It was only in 1995 that the total African aquaculture production exceeded 100 000 tonnes (FAO, 2018e). The average growth of African aquaculture production was 9.2 percent annually during the 2007–2016 period. In 2016, five countries, namely, Egypt, Ghana, Nigeria, Uganda and Zambia, accounted for 94.8 percent of the total African aquaculture production (Table 6). From 1950 to 2016, the ratio of aquaculture on total fish production increased from 0.2 to 17.6 percent (elaboration of the authors based on FAO, 2018f).

The average annual growth of aquaculture production (3 percent) will be higher than capture fisheries (0.6 percent) from 2017 to 2027 (elaboration of the authors based on OECD/FAO, 2018a). The population is forecast to increase by 1.5 billion by 2025 and by 2.1 billion by 2050 (FAO, 2018d). According to the OECD/FAO (2018b), by 2027, per capita fish consumption is expected to decrease in Africa because population growth will be faster than the supply of fish; the increase in both domestic production and fish food imports will not be sufficient to meet the demand (FAO, 2018g). This decline could affect food security and the ability to meet malnutrition targets² 2.1 and 2.2 of the United Nations Sustainable Development Goal (SDG) 2, which seeks to “End hunger, achieve food security and improved nutrition and promote sustainable agriculture” (OECD/FAO, 2018b).

Within this context, the next chapters will review and analyse the policies aiming at poverty eradication, ensuring food security, gender mainstreaming and climate change adaptation to assess specifically the extent to which these policies have been incorporated in the capture fisheries and aquaculture sector.

This paper considers the following eight African RECs (Figure 2): the Arab Maghreb Union (UMA), the Common Market for Eastern and Southern Africa (COMESA), the Community of Sahel-Saharan States (CEN-SAD), the East African Community (EAC), the Economic Community of Central African States (ECCAS), the Economic Community of West African States (ECOWAS), the Intergovernmental Authority on Development (IGAD) and the Southern Africa Development Community (SADC).

The RECs, recognized as the building blocks of the African Economic Community, as set out in the June 1991 Treaty Establishing the African Economic Community (hereinafter the Abuja Treaty), have a range of objectives, including trade liberalization, a regional integration process, the formation of a common market and an African Monetary Union (Koroma *et al.*, 2008).

While their Member States might change over time, this does not affect the relevance and objectivity of this study.

² Malnutrition targets 2.1 of SDG 2: by 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round. Malnutrition targets 2.2 of SDG 2: by 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women, and older persons.

TABLE 6
Capture fisheries and aquaculture production by country

Country	Capture (tonnes)		APR 2007–2016 (%)	Aquaculture (tonnes)		APR 2007–2016 (%)
	2007	2016		2007	2016	
Algeria	147 362	95 000	-4.3	405	1 361	12.9
Angola	306 436	486 490	4.7	190	655	13.2
Benin	36 386	49 806	3.2	178	3 080	33.0
Botswana	122	38	-11.0	...	15	na
Burkina Faso	10 200	22 070	8.0	298	330	1.0
Burundi	11 309	21 805	6.8	50	1 330	38.8
Cabo Verde	20 127	19 900	-0.1			na
Cameroon	138 612	233 190	5.3	546	2 315	15.5
Central African Republic	29 000	29 000	0.0	140	140	0.0
Chad	82 000	110 000	3.0	...	94	na
Comoros	14 401	16 407	1.3			na
Congo	59 216	86 748	3.9	25	177	21.6
Democratic Republic of the Congo	234 252	237 372	0.1	2 970	3 161	0.6
Côte d'Ivoire	47 300	67 500	3.6	1 290	4 701	13.8
Djibouti	1 229	2 220	6.1			na
Egypt	372 491	335 613	-1.0	635 516	1370 660	8.0
Equatorial Guinea	4 533	8 000	5.8	2	15	22.3
Eritrea	2 232	4 300	6.8	0	0	na
Eswatini	60	65	0.8	...	100	na
Ethiopia	13 254	45 500	13.1	25	95	14.3
Gabon	37 814	31 000	-2.0	124	45	-9.6
Gambia	43 574	58 261	2.9	25	35	3.4
Ghana	328 888	327 457	0.0	3 820	52 480	30.0
Guinea	82 073	128 000	4.5	110	250	8.6
Guinea-Bissau	6 500	6 700	0.3			na
Kenya	132 084	171 205	2.6	4 240	14 960	13.4
Lesotho	48	52	0.8	131	1 050	23.1
Liberia	14 488	14 700	0.1	13	40	11.9
Libya	31 921	30 000	-0.6	240	10	-27.2
Madagascar	147 778	141 533	-0.4	11 293	8 575	-2.7
Malawi	66 500	152 852	8.7	1 500	7 646	17.7
Mali	100 000	102 486	0.2	640	4 194	20.7
Mauritania	223 207	609 754	10.6			na
Mauritius	8 325	18 062	8.1	175	1 021	19.3
Morocco	879 469	1447 020	5.1	1 636	1 142	-3.5
Mozambique	92 623	299 591	12.5	838	1 180	3.5
Namibia	413 333	503 878	2.0	334	461	3.3
Niger	29 728	34 592	1.5	40	300	22.3
Nigeria	530 420	734 731	3.3	85 087	306 727	13.7
Rwanda	9 186	25 013	10.5	60	1 580	38.6
Sao Tome and Principe	4 449	11 750	10.2			na
Senegal	412 360	474 162	1.4	45	2 068	46.6
Seychelles	65 514	127 128	6.9	368	0	-100.0
Sierra Leone	139 535	202 100	3.8	50	75	4.1
Somalia	30 000	30 000	0.0			na

TABLE 6 (Continued)

Country	Capture (tonnes)		APR 2007–2016 (%)	Aquaculture (tonnes)		APR 2007–2016 (%)
	2007	2016		2007	2016	
South Africa	679 350	612 190	-1.0	2 669	5 494	7.5
South Sudan	37 000*	35 000	-1.1†	20*	20	0.0†
Sudan	34 000*	33 000	-0.6†	1 600*	4 500	23.0†
United Republic of Tanzania	449 762	403 896	-1.1	45	5 058	60.4
Togo	19 905	31 891	4.8	50	98	7.0
Tunisia	103 790	115 037	1.0	3 581	16 148	16.3
Uganda	431 500	389 244	-1.0	51 110	118 051	8.7
Zambia	73 542	83 918	1.3	5 876	30 285	17.8
Zimbabwe	10 500	15 711	4.1	2 550	10 085	14.7
Africa	7 210 633	9 278 499	2.6	820 523	1 981 897	9.2

Source: Elaboration of the authors based on FAO (2018e).

Notes: * Year 2012; †APR 2012–2016; APR = annual percentage rate; na = not applicable;

... = data unavailable. Data for the United Republic of Tanzania refer to Tanzania mainland and Zanzibar Island.

The Member States of each of the organizations are the following:

- UMA comprises five Member States: Algeria, Libya, Mauritania, Morocco and Tunisia.
- The 19 Member States of COMESA are Burundi, the Comoros, Democratic Republic of the Congo, Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Libya, Madagascar, Malawi, Mauritius, Rwanda, Seychelles, Sudan, Eswatini, Uganda, Zambia and Zimbabwe.
- CEN-SAD has 18 Member States: Benin, Burkina-Faso, Central African Republic, Chad, Djibouti, Egypt, Eritrea, the Gambia, Libya, Mali, Morocco, the Niger, Nigeria, Senegal, Somalia, Sudan, Togo and Tunisia.
- EAC is composed of five Member States: Burundi, Kenya, Rwanda, United Republic of Tanzania and Uganda.
- ECCAS comprises ten Member States: Angola, Burundi, Cameroon, Central African Republic, Chad, Congo, Democratic Republic of the Congo, Equatorial Guinea, Gabon, Sao Tome and Principe.
- The 15 Member States of ECOWAS are Benin, Burkina Faso, Cabo Verde, Cote d'Ivoire, the Gambia, Ghana, Guinea, GuineaBissau, Liberia, Mali, the Niger, Nigeria, Senegal, Sierra Leone and Togo.
- IGAD encompasses six Member States: Djibouti, Ethiopia, Eritrea, Kenya, Somalia, South Sudan, Sudan and Uganda.
- SADC consists of 15 Member States: Angola, Botswana, Democratic Republic of the Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Eswatini, United Republic of Tanzania, Zambia and Zimbabwe.

One of their key characteristics is that many countries are part of more than one REC.³ This results in several analytical challenges. First, due to the overlapping of Member States, it is difficult to make an aggregated comparison between them. This could also result in similar policy issues that must be considered. The effect of the overlapping of countries is shown in Table 7. It must be noted that, in 2016, while the total capture fisheries and aquaculture production by African countries amounted

³ Many countries are members of more than one REC. In this work, figures and tables were produced by aggregating data at the country level; for both 2006 and 2016, aggregated data refer to the list of countries that were members in 2016.

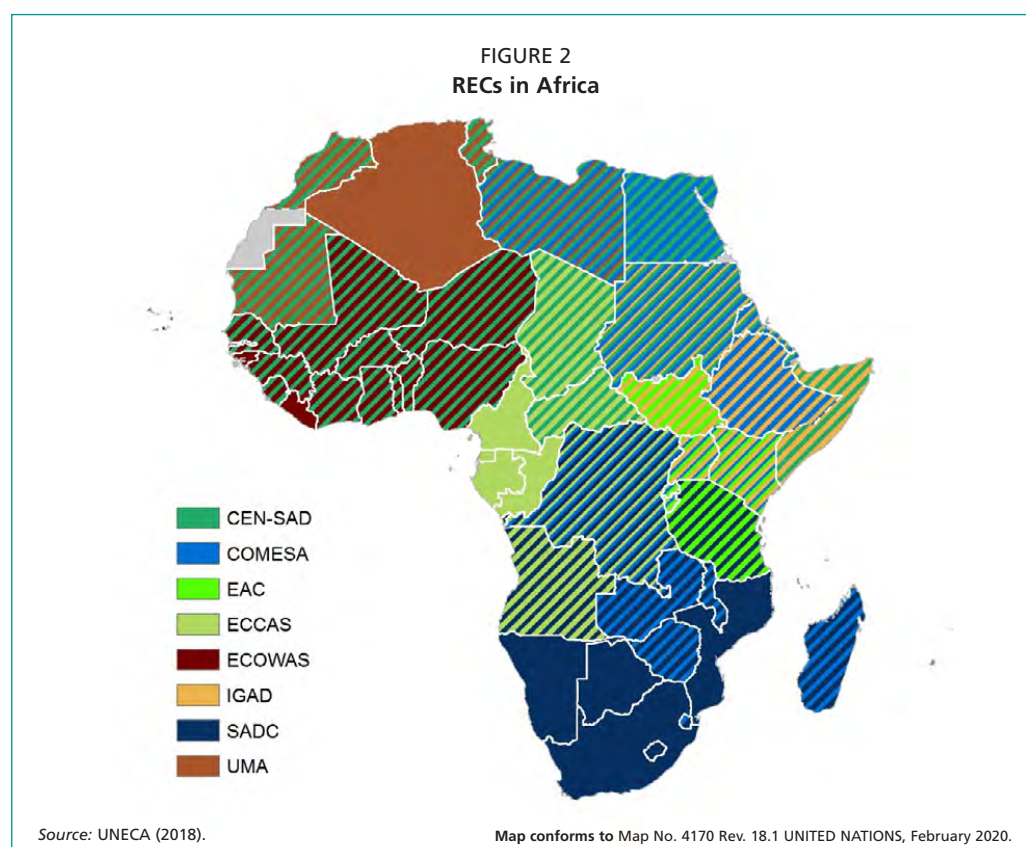


TABLE 7
Capture fisheries and aquaculture production by REC

REC	Capture fisheries (tonnes)		APR 2007–2016 (%)	Aquaculture (tonnes)		APR 2007–2016 (%)
	2007	2016		2007	2016	
UMA	1 385 749	2 296 811	5.2	5 862	18 661	12.3
COMESA	1 660 078	1 850 948	1.1	717 573	1 572 060	8.2
CEN-SAD	2 748 705	3 644 189	2.9	729 076	1 709 526	8.9
EAC	1 033 841	1 011 163	-0.2	55 505	140 979	9.8
ECCAS	907 621	1 255 355	3.3	4 047	7 932	7.0
ECOWAS	1 821 484	2 274 356	2.2	91 646	374 378	15.1
IGAD	681 299	710 469	0.4	56 995	137 626	9.2
SADC	1 385 749	2 296 811	5.2	5 862	18 661	12.3
Africa	7 210 633	9 278 499	2.6	820 523	1 981 897	9.2

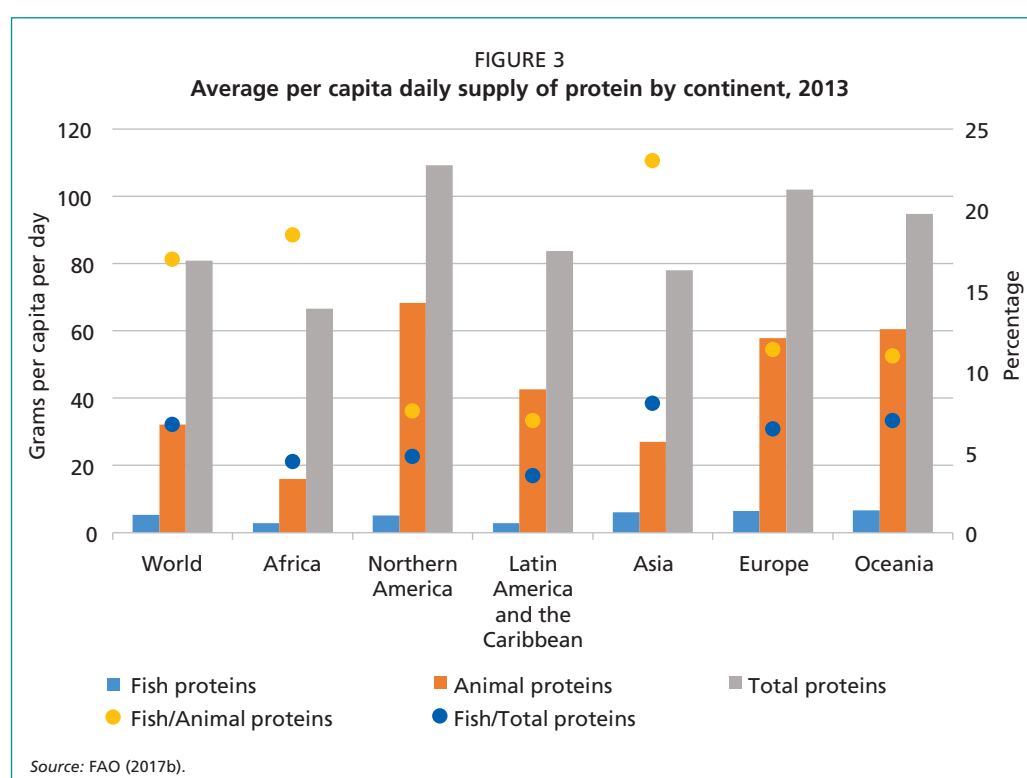
Source: Elaboration of the authors based on FAO (2018e).

Notes: Figures were produced by aggregating data at the country level; for both 2007 and 2016, aggregated data refer to the list of countries that were members in 2016. APR = annual percentage rate; CEN-SAD = Community of Sahel-Saharan States; COMESA = Common Market for Eastern and Southern Africa; EAC = East African Community; ECCAS = Economic Community of Central African States; ECOWAS = Economic Community of West African States; IGAD = Intergovernmental Authority on Development; REC = Regional Economic Community; UMA = Arab Maghreb Union; SADC = Southern Africa Development Community.

to 9 278 499 tonnes and 1 981 897 tonnes, respectively, as detailed in Table 6, the combined production of the RECs alone may mislead interpretation of production due to overlapping memberships, to an apparent output of nearly actual levels for the entirety of African countries. The trend of both capture fisheries and aquaculture production in Africa by REC is presented in Annex 1 and Annex 2, respectively. However, despite this difficulty, the performance of the fisheries and aquaculture sector for each REC has been considered.

3.2 FISHERIES AND AQUACULTURE CONSUMPTION AT THE COUNTRY AND REGIONAL LEVEL

In Africa, per capita food fish consumption grew from 4.8 kg in 1961 to 10.1 kg in 2013, compared to an increase from 9.0 kg to 19.8 kg, respectively, at the global level (FAO, 2017b). Moreover, compared to other continents, Africa has the lowest average daily supply of protein (Figure 3). In 2013, fish consumption ranged from a maximum of 56.6 kg per capita in the Seychelles to a low of 0.4 kg per capita in Ethiopia (Table 8). Despite Africa having a lower per capita fish consumption than the world average, it has a higher proportion of fish to total animal protein intake (OECD/FAO, 2018b). In 2013, fish accounted for about 18.4 percent of animal protein consumed by the African population, compared to 16.9 percent of animal protein consumed at the global level. In Ghana, Sao Tome and Principe and Sierra Leone, fish accounted for 50 percent or more of total animal protein intake (FAO, 2017b).



As illustrated in Table 8 and Table 9, fish consumption varies significantly across countries. In Africa, there are 13 countries with an annual per capita fish consumption above the world average of 19.4 kg, as reported by FAO (2017b). Furthermore, 16 other countries consume fish between the world average and half of this average per capita, while the remaining 28 countries consume less than half of the world's average for fish consumption.

Given the considerations and limitations mentioned earlier when comparing members of RECs, it is essential that their differences in the contribution of fisheries and aquaculture in food consumption be highlighted. The inhabitants of ECOWAS countries have an average fish consumption that is almost four times higher than those of IGAD. For ECCAS, per capita fish consumption is higher than the African average. However, together with EAC, it recorded the lowest average total protein intake of 53.1 grams per capita per day among the African RECs. This is mainly due to the Democratic Republic of the Congo, which has nearly half of the population of ECCAS (46.3 percent) and a particularly low record of total protein intake (26.7 grams per capita per day) (Table 9).

TABLE 8
Apparent food fish consumption by country, 2013

Countries	Per capita supply	Fish protein	Animal protein	Total protein	Fish/animal protein	Fish/total proteins
	(Kilograms)	(Grams per capita per day)			(Percentage)	
Algeria	4.0	1.2	25.0	91.9	4.8	1.3
Angola	18.6	5.0	19.4	58.2	25.8	8.6
Benin	13.3	3.6	14.2	64.4	25.3	5.6
Botswana	4.1	1.1	26.4	64.9	4.2	1.7
Burkina Faso	6.9	2.2	11.1	79.4	20.1	2.8
Burundi	2.0	0.6	2.2	36.0	28.1	1.7
Cabo Verde	11.9	3.3	27.8	73.5	12.0	4.5
Cameroon	15.4	4.3	11.7	69.9	36.4	6.1
Central African Republic	7.8	2.3	17.1	46.1	13.4	5
Chad	9.5	4.4	12.2	65.2	35.8	6.7
Comoros	15.4	5.1	12.8	54.4	39.8	9.3
Congo	26.5	8.2	22.2	51.7	36.7	15.8
Democratic Republic of the Congo	5.3	1.6	4.2	26.7	37.5	5.9
Côte d'Ivoire	16.1	4.8	13.9	58.7	34.7	8.2
Djibouti	3.8	1.1	15.1	65.9	7.2	1.6
Egypt	22.1	6.3	26.3	103.2	24.0	6.1
Equatorial Guinea	24.6	7.1	19.9	35.7	35.7	19.9
Eritrea	0.6	0.2	5.6	25.5	2.8	0.6
Eswatini	2.6	0.6	17.8	58.8	3.5	1.1
Ethiopia	0.4	0.1	7.7	60.5	1.6	0.2
Gabon	35.6	10.2	43.0	86.6	23.7	11.8
Gambia	24.1	6.9	14.1	61.5	49.0	11.2
Ghana	26.3	8.6	17.2	64.5	50.0	13.3
Guinea	10.2	3.1	10.3	56.3	29.7	5.5
Guinea-Bissau	1.4	0.4	8.9	44.0	4.4	0.9
Kenya	4.1	1.2	15.8	61.8	7.3	1.9
Lesotho	1.3	0.4	12.9	73.6	2.8	0.5
Liberia	4.1	1.1	8.1	37.6	13.8	3.0
Libya	22.6	6.3	34.5	87.9	18.3	7.2
Madagascar	4.2	1.2	9.8	46.5	12.5	2.6
Malawi	7.3	2.2	7.8	64.5	28.0	3.4
Mali	7.7	2.0	23.7	85.2	8.5	2.4
Mauritania	8.1	2.5	33.4	84.5	7.4	2.9
Mauritius	23.6	7.4	39.8	88.4	18.7	8.4
Morocco	18.1	5.9	26.6	97.9	22.2	6.0
Mozambique	10.1	2.9	7.0	46.3	42.0	6.3
Namibia	12.1	3.6	20.0	58.1	18.0	6.2
Niger	2.7	0.8	14.7	80.9	5.4	1.0
Nigeria	13.3	3.6	9.2	63.1	38.6	5.6
Rwanda	4.5	1.5	5.8	57.0	25.1	2.5
Sao Tome and Principe	30.4	9.3	17.4	54.6	53.3	17
Senegal	23.9	6.5	15.2	58.5	42.5	11.1
Seychelles	56.6	17.5	35.3	75.9	49.7	23.1

TABLE 8 (Continued)

Countries	Per capita supply	Fish protein	Animal protein	Total protein	Fish/animal protein	Fish/total proteins
	(Kilograms)	(Grams per capita per day)			(Percentage)	
Sierra Leone	32.3	9.6	14.9	56.1	64.4	17.1
Somalia	3.1	0.9	27.9	54.8	3.2	1.6
South Africa	6.3	1.8	36.4	85.3	5.0	2.1
South Sudan	3.3	1.0
Sudan	1.1	0.3	29.2	70.7	1.1	0.4
Tanzania	7.2	2.3	10.4	58.0	22.5	4.0
Togo	11	3.2	8.8	59.6	36.1	5.3
Tunisia	13.6	3.9	28.4	98.6	13.8	4.0
Uganda	12.5	3.7	12.4	52.7	30.1	7.1
Zambia	10	2.9	10.3	56.3	27.8	5.1
Zimbabwe	3.2	1	11.9	48.5	8.1	2
Africa	10.1	2.9	16.0	66.6	18.4	4.4

Source: FAO (2017b).

Note: ... = not available.

Likewise, the effect of the low level of total protein intake of the Democratic Republic of the Congo is less visible in the other RECs, based on their total population. For example, the population of the Democratic Republic of the Congo represents 23 percent of SADC and 14 percent of COMESA (elaboration of the authors based on FAO, 2018d). Population composition was affected differently on the overall record of total protein intake in each of the RECs.

TABLE 9

Average apparent food fish consumption by REC, 2013

REC	Per capita supply	Fish protein	Animal protein	Total protein	Fish/animal protein	Fish/total proteins
	(Kilograms)	(Grams per capita per day)			(Percentage)	
UMA	13.3	4.0	29.6	92.2	13.3	4.3
COMESA	10.6	3.2	16.0	60.1	19.5	4.7
CEN-SAD	11.4	3.4	18.6	70.5	20.4	4.7
EAC	6.1	1.9	9.3	53.1	22.6	3.4
ECCAS	17.6	5.3	16.9	53.1	32.6	9.9
ECOWAS	13.7	4.0	14.1	62.9	29.0	6.5
IGAD	3.6	1.1	16.2	56.0	7.6	1.9
SADC	11.5	3.4	18.0	60.7	20.4	5.4
Africa	10.1	2.9	16.0	66.6	18.4	4.4

Source: Elaboration of the authors based on FAO (2017b).

Notes: Figures were produced by aggregating data at country level and calculating the unweighted mean values; aggregated data refer to the list of countries that were members in 2016. CEN-SAD = Community of Sahel-Saharan States; COMESA = Common Market for Eastern and Southern Africa; EAC = East African Community; ECCAS = Economic Community of Central African States; ECOWAS = Economic Community of West African States; IGAD = Intergovernmental Authority on Development; REC = Regional Economic Community; UMA = Arab Maghreb Union; SADC = Southern Africa Development Community.

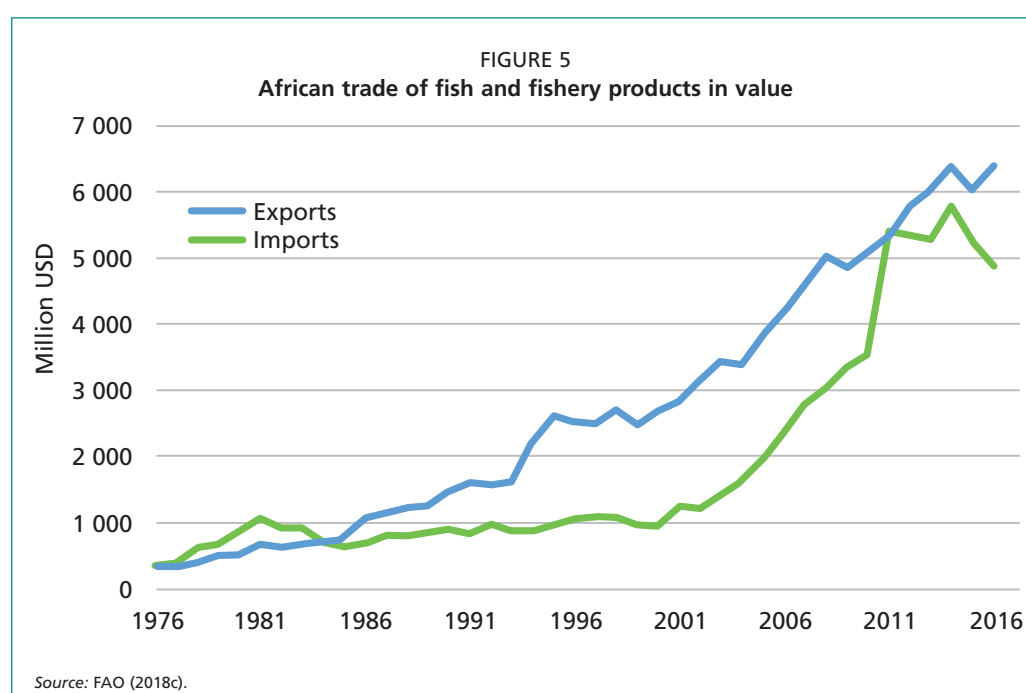
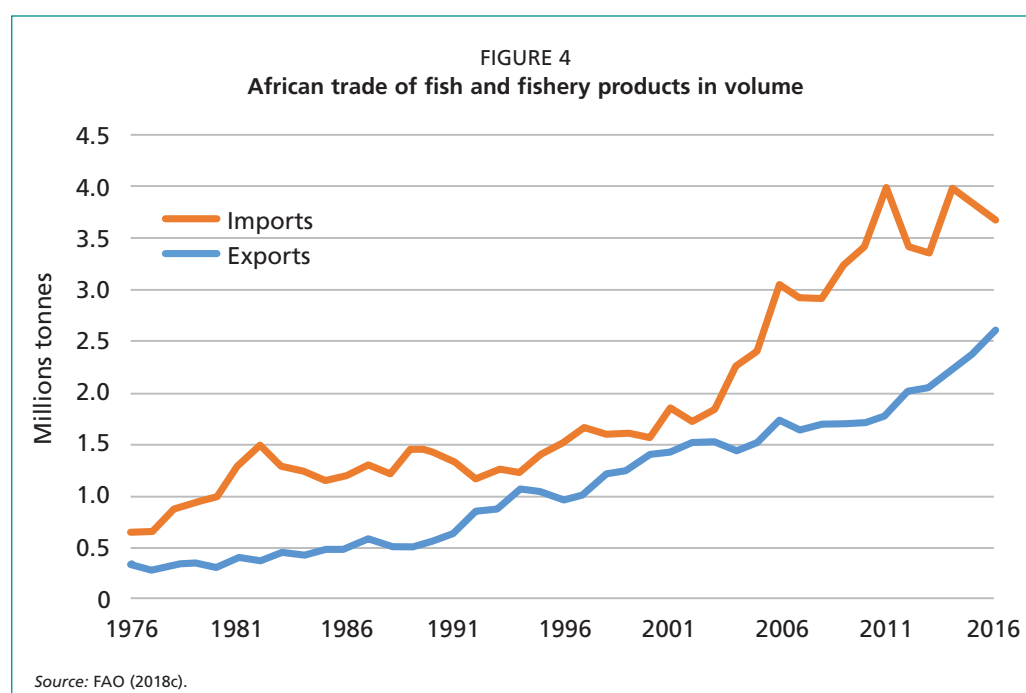
3.3 TRADE OF FISH AND FISHERIES PRODUCTS

Africa is a net importer of fisheries and aquaculture products by volume.⁴ From 1976 to 2016, imports exceeded exports by an average of more than 800 000 tonnes; the highest gap was recorded in 2011 with 2.2 million tonnes (Figure 4).

⁴ Fish and fishery products imports and exports are aggregated according to the General Trade System by summing up national fishery commodities exports and re-exports.

However, when considering trade of fish and fisheries products in terms of value, Africa has been a net exporter of fisheries and aquaculture products since 1985, with the exception of 2011. The highest surplus was recorded in 2003 with an amount of more than USD 2 billion (Figure 5). In recent times, the average annual growth rate of imports in value terms has dropped substantially because of reduced economic growth in many African countries (FAO, 2018g).

Africa exports relatively high-value fish and fish products primarily to developed country markets, particularly Europe, and imports relatively low-value fish and fishery products, mainly cheaper, smaller pelagic species, which represent an important source of dietary diversification (FAO, 2018g).



The increase in imports by volume has been recorded since 1976, with an average annual growth rate of 4.3 percent from 1976 to 2016; while exports have grown to a minor extent, they recorded an average annual growth rate of 5.1 percent during the same time frame (elaboration of the authors based on FAO, 2018c).

In value terms, a negative balance of trade was recorded for 38 African countries in 2016 (Table 10). From 1976 to 2016, imports and exports increased with an average annual growth rate of 6.6 and 7.4 percent, respectively. The five countries with the highest negative balance of trade are Egypt, Nigeria, Cameroon, Côte d'Ivoire and Ghana (elaboration of the authors based on FAO, 2018c). These five countries account for 29.2 percent of the African population. They have a relatively high per capita fish consumption, ranging from 13.3 kg in Nigeria to 26.3 kg in Ghana, and have a high percentage of fish in their total animal protein intake, ranging from 24 percent in Egypt to 50 percent in Ghana⁵ (elaboration of the authors based on FAO, 2017b). Egypt and Nigeria are among the countries in Africa with the largest populations, together comprising 23 percent of the total population. They are also among the biggest producers of capture fisheries and aquaculture together with Morocco, with a particularly high aquaculture production (section 3.1). Information on trade of fish and fishery products in Africa by REC in value and volume is available in Annex 3 and Annex 4, respectively.

TABLE 10
Trade of fish and fishery products, 2016

Country	Exports (tonnes)	Imports (tonnes)	Balance of trade (tonnes)	Exports (USD 1 000)	Imports (USD 1 000)	Balance of trade (USD 1 000)
Algeria	2 024	40 740	- 38 716	6 675	109 349	- 102 674
Angola	19 321	143 094	- 123 773	74 623	241 084	- 166 461
Benin	203	112 079	- 111 876	151	75 051	- 74 900
Botswana	18	5 680	- 5 662	49	10 840	- 10 791
Burkina Faso	1 188	82 239	- 81 051	300	12 058	- 11 758
Burundi	21	2 330	- 2 309	122	1 924	- 1 802
Cabo Verde	24 775	961	23 814	49 546	5 176	44 370
Cameroon	4 319	243 401	- 239 082	771	288 998	- 288 227
Central African Republic	0	5 462	- 5 462	0	3 676	- 3 676
Chad	60	353	-293	48	1 277	- 1 229
Comoros	0	988	-988	0	2 935	- 2 935
Congo	513	29 348	- 28 835	925	70 930	- 70 005
Democratic Republic of the Congo	88	128 315	- 128 227	2 135	143 819	- 141 684
Côte d'Ivoire	31 594	391 444	- 359 850	109 451	380 168	- 270 717
Djibouti	3	1 572	- 1 569	21	6 995	- 6 974
Egypt	48 596	405 156	- 356 560	42 295	720 030	- 677 735
Equatorial Guinea	26	5 950	- 5 924	50	17 002	- 16 952
Eritrea	...	9	-9	...	31	-31
Eswatini	0	3 153	- 3 153	2	7 333	- 7 331
Ethiopia	371	1 164	-793	219	3 405	- 3 186
Gabon	1 032	26 315	- 25 283	2 917	57 841	- 54 924
Gambia	2 801	1 497	1 304	2 710	335	2 375
Ghana	29 242	370 789	- 341 547	63 652	323 608	- 259 956
Guinea	11 332	3 286	8 046	12 752	4 999	7 753

⁵ The data refer to 2013 (FAO, 2018c).

TABLE 10 (Continued)

Country	Exports (tonnes)	Imports (tonnes)	Balance of trade (tonnes)	Exports (USD 1 000)	Imports (USD 1 000)	Balance of trade (USD 1 000)
Guinea-Bissau	4 512	705	3 807	5 664	1 842	3 822
Kenya	6 000	22 796	- 16 796	18 344	23 244	- 4 900
Lesotho	567	2 943	- 2 376	1 645	5 249	- 3 604
Liberia	132	10 834	- 10 702	524	10 275	- 9 751
Libya	2 104	43 045	- 40 941	24 581	176 643	- 152 062
Madagascar	20 987	14 105	6 882	136 881	19 572	117 309
Malawi	14	2 356	- 2 342	133	1 691	- 1 558
Mali	1 661	51 883	- 50 222	500	30 375	- 29 875
Mauritania	460 898	4 427	456 471	599 620	1 749	597 871
Mauritius	151 249	184 833	- 33 584	414 453	314 534	99 919
Morocco	684 333	65 582	618 751	2 124 157	166 570	1 957 587
Mozambique	10 120	37 787	- 27 667	44 650	61 863	- 17 213
Namibia	407 183	27 133	380 050	646 910	59 205	587 705
Niger	430	7 402	- 6 972	373	7 450	- 7 077
Nigeria	6 659	619 467	- 612 808	60 097	683 711	- 623 614
Rwanda	2 480	30 792	- 28 312	3 786	24 656	- 20 870
Sao Tome and Principe	9	46	-37	29	329	-300
Senegal	220 524	18 495	202 029	377 410	22 475	354 935
Seychelles	166 801	75 677	91 124	483 671	124 708	358 963
Sierra Leone	6 790	1 069	5 721	11 337	2 709	8 628
Somalia	2 886	3 471	-585	4 612	13 328	- 8 716
South Africa	203 770	189 251	14 519	621 256	361 567	259 689
South Sudan	...	81	-81	...	327	-327
Sudan	977	3 126	- 2 149	1 376	7 506	- 6 130
United Republic of Tanzania	33 897	25 031	8 866	137 246	21 772	115 474
Togo	71	47 887	- 47 816	1 486	26 252	- 24 766
Tunisia	21 335	34 267	- 12 932	148 498	73 169	75 329
Uganda	19 656	1 991	17 665	122 440	2 668	119 772
Zambia	315	126 920	- 126 605	538	101 215	- 100 677
Zimbabwe	3 223	22 253	- 19 030	7 112	24 253	- 17 141
Africa	2 618 230	3 681 025	-1 062 795	6 388 316	4 860 019	1 528 297

Source: FAO (2018c).

Notes: ... = data unavailable.

4. Assessment of the relevance of fisheries and aquaculture at the country and regional level

Based on the proposed methodology in Chapter 2, the next sections analyse the relevance of the fisheries and aquaculture sector at the country and regional level.

4.1 ASSESSMENT OF THE RELEVANCE OF FISHERIES AND AQUACULTURE AT THE COUNTRY LEVEL

This section assesses the relevance of the fisheries and aquaculture sector at the country level. The scoring and ranking results are presented in a performance matrix (Table 11), in which each row refers to an African country and each column describes the performance of the countries against each performance dimension. The Indicator of Relevance of Fisheries and Aquaculture (IRFA) is calculated by summing the scores of FC, FS and FE for a maximum rank of 12 (full rank). A high rank suggests that, compared to the African average, the fisheries and aquaculture sector is relevant in the country. According to the ranking methodology proposed in Table 3, nine countries had a “very high” rank level in terms of relevance, of which three countries reached the full rank, namely, Senegal, Seychelles and Sierra Leone. The majority, 24 African countries, were ranked with a “high” level. A “medium” rank resulted for eight countries, while a “low” rank was recorded for 13 countries. The scoring calculations are detailed in Annex 5.

TABLE 11
Performance matrix of the relevance of fisheries and aquaculture at the country level





































































Country	FC _{SCORE}		FS _{SCORE}		FE _{SCORE}		IRFA	
Algeria	1		1		1		3	
Angola	4		3		4		11	
Benin	3		3		1		7	
Botswana	1		1		1		3	
Burkina Faso	2		3		1		6	
Burundi	1		4		1		6	
Cabo Verde	3		2		4		9	
Cameroon	4		4		1		9	
Central African Republic	2		2		1		5	
Chad	2		4		1		7	
Comoros	4		4		1		9	
Congo	4		4		1		9	
Côte d'Ivoire	4		4		1		9	
Democratic Republic of the Congo	2		4		1		7	
Djibouti	1		1		1		3	
Egypt	4		3		1		8	
Equatorial Guinea	4		4		1		9	

TABLE 11 (Continued)

Country	FC _{SCORE}		FS _{SCORE}		FE _{SCORE}		IRFA	
Eritrea	1		1		3		5	
Eswatini	1		1		1		3	
Ethiopia	1		1		1		3	
Gabon	4		3		1		8	
Gambia	4		4		2		10	
Ghana	4		4		1		9	
Guinea	3		4		2		9	
Guinea-Bissau	1		1		1		3	
Kenya	1		1		1		3	
Lesotho	1		1		1		3	
Liberia	1		2		1		4	
Libya	4		2		4		10	
Madagascar	1		2		4		7	
Malawi	2		4		1		7	
Mali	2		1		1		4	
Mauritania	2		1		4		7	
Mauritius	4		3		4		11	
Morocco	4		3		4		11	
Mozambique	3		4		2		9	
Namibia	3		2		4		9	
Niger	1		1		1		3	
Nigeria	3		4		4		11	
Rwanda	1		3		1		5	
Sao Tome and Principe	4		4		1		9	
Senegal	4		4		4		12	
Seychelles	4		4		4		12	
Sierra Leone	4		4		4		12	
Somalia	1		1		1		3	
South Africa	2		1		1		4	
South Sudan	1		0		0		1	
Sudan	1		1		1		3	
Togo	3		4		1		8	
Tunisia	3		2		2		7	
Uganda	3		4		2		9	
United Republic of Tanzania	2		3		2		7	
Zambia	2		4		1		7	
Zimbabwe	1		1		1		3	

































Source: Elaboration of the authors based on FAO (2017b; 2018c; 2018b).

Notes: The data in the table refer to 2013. FC_{SCORE} = score of the apparent per capita consumption of fish and fishery product; FE_{SCORE} = score of the fishery exports as a percentage of agricultural exports; FS_{SCORE} = score of the fish share in animal protein; IRFA = Indicator of Relevance of Fisheries and Aquaculture.

4.2 ASSESSMENT OF THE RELEVANCE OF FISHERIES AND AQUACULTURE AT THE REC LEVEL

This section assesses the importance and relevance of fisheries and aquaculture at the regional level in terms of RECs. With regard to relevance of fisheries and aquaculture, RECs were then ranked into five categories according to the methodology proposed in Table 3. The scoring and ranking results at the REC level are presented in Table 12. The RECs reporting a “very high” rank were ECCAS, ECOWAS and SADC, while the RECs ranking with a “high” level were CENSAD, COMESA and UMA. A “medium” rank was detected for EAC and a “low” rank for IGAD. The scoring calculations are presented in Annex 6. As pointed out in section 2.1, the scoring analysis at the REC level was carried out by using the mean score for the selected indicators.

TABLE 12
Performance matrix of the relevance of fisheries and aquaculture at the REC level

REC	FC _{SCORE}		FS _{SCORE}		FE _{SCORE}		IRFA	
ECCAS	4		4		2		10	
ECOWAS	3		4		3		10	
SADC	3		3		4		10	
COMESA	3		3		3		9	
UMA	3		2		4		9	
CEN-SAD	3		3		2		8	
EAC	2		3		1		6	
IGAD	1		1		1		3	

Source: Elaboration of the authors based on FAO (2017b; 2018c; 2018b).

Notes: The data in the table refer to 2013. CEN-SAD = Community of Sahel-Saharan States; COMESA = Common Market for Eastern and Southern Africa; EAC = East African Community; ECCAS = Economic Community of Central African States; ECOWAS = Economic Community of West African States; FC_{SCORE} = score of the apparent per capita consumption of fish and fishery product; FE_{SCORE} = score of the fishery exports as a percentage of agricultural exports; FS_{SCORE} = score of the fish share in animal protein; IGAD = Intergovernmental Authority on Development; IRFA = Indicator of Relevance of Fisheries and Aquaculture; REC = Regional Economic Community; UMA = Arab Maghreb Union; SADC = Southern Africa Development Community.

5. Assessment of the inclusion and integration of fisheries and aquaculture in the national and regional policy documents

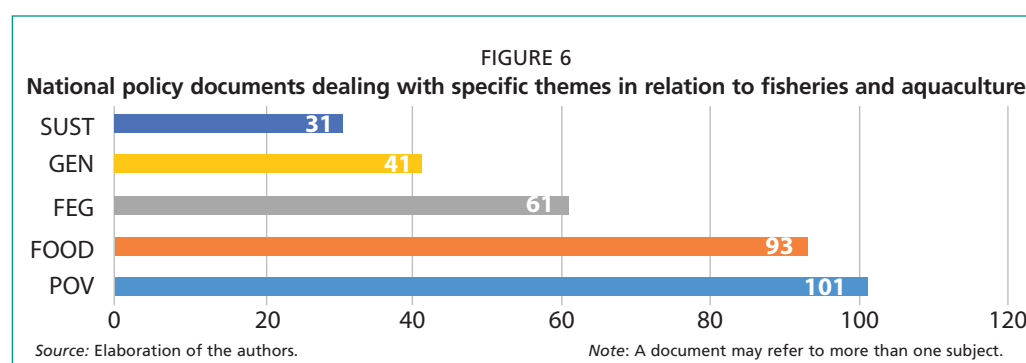
The purpose of the analysis performed is to assess whether the fisheries and aquaculture sector is adequately embedded into national and regional policy documents addressing the outlined themes of poverty eradication, foreign exchange generation, food security, sustainable ecosystem and gender mainstreaming. An overview of the contents is also provided.

Several policy documents addressing the five major themes of this analysis (i.e. poverty eradication, foreign exchange generation, food security, sustainable ecosystem and gender mainstreaming) were carefully reviewed to determine the extent to which these policy documents incorporate the fisheries and aquaculture sector to meet the envisaged growth and development objectives. Sector-specific policy documents have been included in the assessment.

In 2016, the search was performed electronically through FAOLEX⁶ and Google by first using theme-specific keywords: poverty eradication, foreign currency generation, food security, nutrition, ecosystem approach and gender; and then using sector-specific keywords: agriculture, capture fisheries and aquaculture. The search covered the policy documents of 54 African countries and 8 RECs produced during the period 2004–2016. Therefore, results may not reflect the current situation. The list was then integrated with the policy documents provided by the participants of the first Consultative Meeting on “Improving Policy Development in Aquaculture in Support of Food Security, Nutrition and Poverty Eradication”, held in Addis, Ethiopia, from 3 to 4 December 2018, and the 37th SADC Fisheries and Aquaculture Meeting in Windhoek, Namibia.

The list of countries and RECs included in the assessment is provided in Annex 9. In total, 224 national policy documents were examined, with most of them centred around the thematic areas of poverty eradication and food security. However, in general, they do not adequately provide for the themes of gender mainstreaming and the ecosystem approach (Figure 6).

The assessment of the inclusion and integration is based on the national and regional policy listed in Annex 10.



⁶ FAOLEX is a comprehensive and up-to-date legislative and policy database, one of the world's largest electronic collection of national laws, regulations and policies on food, agriculture and natural resources management. Available at www.fao.org/faolex/en/.

5.1 OVERALL INTEGRATION AT THE COUNTRY AND REGIONAL LEVEL

The ranking results in terms of inclusion of fisheries and aquaculture in the national policy documents are presented in Table 13. The next sections provide a breakdown of this analysis under each theme of the study. The countries were ranked by summing the scores given under each of the five themes. In some cases, e.g. Uganda, the documents referred to several themes. In other cases, e.g. Egypt, despite having four documents included in the analysis, only three of them referred to fisheries and/or aquaculture and none related to a specific thematic area. Five countries did not refer to fisheries and/or aquaculture in any of the documents reviewed, nor could fisheries and/or aquaculture policies be found. In addition, the general ranking shows no specific link with the geographical location of the African countries. The 16 countries scoring an IIFA of 6 points or more originate from all parts of Africa. According to the performed qualitative assessment, South Africa reported a “very high” rank; Morocco and Uganda reported a “high” rank in terms of inclusion of fisheries and aquaculture in their policy documents. A “medium” rank resulted for 15 countries. The majority, 30 countries, were ranked with a “low” level. A “negligible” rank was detected for 6 countries.

The performance matrix of the inclusion of fisheries and aquaculture at the country level detailed by theme is shown in Annex 7.

TABLE 13
Inclusion of fisheries and aquaculture in national policy documents
























Country	Policy documents (no.)	IIFA	
Algeria	2	3	
Angola	5	5	
Benin	5	4	
Botswana	0	0	
Burkina Faso	9	5	
Burundi	5	6	
Cabo Verde	2	4	
Cameroon	4	2	
Central Africa Republic	3	4	
Chad	4	5	
Comoros	4	8	
Congo	0	0	
Côte d'Ivoire	4	9	
Democratic Republic of the Congo	7	5	
Djibouti	5	10	
Egypt	3	0	
Equatorial Guinea	3	2	
Eritrea	3	8	
Eswatini	5	9	
Ethiopia	7	4	
Gabon	3	8	
Gambia	10	8	
Ghana	4	6	

TABLE 13 (Continued)

Country	Policy documents (no.)	IIFA	
Guinea	1	2	
Guinea-Bissau	2	1	
Kenya	9	6	
Lesotho	1	0	
Liberia	7	5	
Libya	0	0	
Madagascar	11	5	
Malawi	5	7	
Mali	1	2	
Mauritania	4	4	
Mauritius	3	5	
Morocco	8	12	
Mozambique	5	6	
Namibia	2	5	
Niger	1	1	
Nigeria	3	2	
Rwanda	5	4	
São Tomé e Príncipe	3	3	
Senegal	5	10	
Seychelles	5	5	
Sierra Leone	5	4	
Somalia	4	4	
South Africa	2	16	
South Sudan	4	5	
Sudan	3	4	
Togo	4	2	
Tunisia	0	0	
Uganda	2	13	
United Republic of Tanzania	9	7	
Zambia	10	8	
Zimbabwe	2	2	

Source: Elaboration of the authors based on the scoring methodology proposed in Table 4.


































Note: IIFA = Indicator of Inclusion of Fisheries and Aquaculture.

Table 14 presents the results of the performed assessment of the overall integration of fisheries and aquaculture with national policy documents. In general, for most of the 54 African countries assessed, there is a low connection between the relevance of the fisheries and aquaculture sector at the national level and the inclusion of the sector within national policies across the themes surveyed. In countries where fisheries and/

TABLE 14
Overall integration of fisheries and aquaculture with national policy documents

Country	IRFA		IIFA		IINFA
Algeria	3		3		6
Angola	11		5		16
Benin	7		4		11
Botswana	3		0		3
Burkina Faso	6		5		11
Burundi	6		6		12
Cabo Verde	9		4		13
Cameroon	9		2		11
Central African Republic	5		4		9
Chad	7		5		12
Comoros	9		8		17
Congo	9		0		9
Côte d'Ivoire	9		9		18
Democratic Republic of the Congo	7		5		12
Djibouti	3		10		13
Egypt	8		0		8
Equatorial Guinea	9		2		11
Eritrea	5		8		13
Eswatini	3		9		12
Ethiopia	3		4		7
Gabon	8		8		16
Gambia	10		8		18
Ghana	9		6		15
Guinea	9		2		11
Guinea-Bissau	3		1		4
Kenya	3		6		9
Lesotho	3		0		3
Liberia	4		5		9
Libya	10		0		10
Madagascar	7		5		12
Malawi	7		7		14
Mali	4		2		6
Mauritania	7		4		11
Mauritius	11		5		16
Morocco	11		12		23
Mozambique	9		6		15
Namibia	9		5		14

TABLE 14 (Continued)

Country	IRFA		IIFA		IINFA
Niger	3		1		4
Nigeria	11		2		13
Rwanda	5		4		9
Sao Tome and Principe	9		3		12
Senegal	12		10		22
Seychelles	12		5		17
Sierra Leone	12		4		16
Somalia	3		4		7
South Africa	4		16		20
South Sudan	1		5		6
Sudan	3		4		7
Togo	8		2		10
Tunisia	7		0		7
Uganda	9		13		22
United Republic of Tanzania	7		7		14
Zambia	7		8		15
Zimbabwe	3		2		5

Source: Elaboration of the authors based on the scoring methodology proposed in Table 2 and Table 4 and ranking proposed in Table 3 and Table 5.

Note: IIFA = Indicator of Inclusion of Fisheries and Aquaculture; IINFA = Indicator of Integration of Fisheries and Aquaculture; IRFA = Indicator of Relevance of Fisheries and Aquaculture.

or aquaculture resulted relevant, and which also presented a high level of inclusion into policy documents, it is submitted that fisheries and/or aquaculture is a “consolidated” sector. This is particularly true in the case of Morocco, Uganda, Senegal and South Africa. These countries had reported high values of integration (IINFA between 20 and 23), while countries such as Botswana, Lesotho, the Niger, Guinea-Bissau and Zimbabwe had low values of integration, i.e. an IINFA between 3 and 5. There are some exceptions, e.g. in Cameroon and Sao Tome and Principe, although the relevance of fisheries and/or aquaculture ranked “high”, the inclusion into policy documents resulted “low” (Table 15).

Congo ranked “high” in terms of relevance, while none of documents afforded the necessary incidental inclusion or even considered/mentioned the fisheries and aquaculture sector; two policy documents were found to be available in relation to the themes surveyed, and none of them made any reference to the fisheries and aquaculture sector, either in form or substance. The same finding applies to Egypt, where the relevance indicator ranked “high”, but had a surprisingly “negligible” inclusion across all the thematic areas in national policies.

In some countries, fisheries and aquaculture are not particularly important in terms of IRFA, but their national policies greatly included the studied themes, e.g. Djibouti ranked a “low” relevance but “medium” inclusion.

Even if there is a general connection between high levels of relevance of the fisheries and aquaculture sector and its inclusion into national policy documents, and particularly, policies that adequately treat the thematic areas of this analysis, two exceptions to this trend are evident. First, there are instances of high relevance of fisheries and aquaculture,

yet low or no specific inclusion of fisheries and aquaculture into policy documents. Conversely, while some countries reflect low relevance of fisheries and aquaculture, they yield high degrees of incorporation into policy documents.

Despite reporting high values of integration of fisheries and aquaculture in national policy documents (Table 14), countries could still improve their policies regarding food security, poverty eradication, gender mainstreaming, generation of foreign exchange and the ecosystem approach. Perhaps, one area of improvement is capacity building through a public education campaign to raise awareness on the importance and potential of fisheries and aquaculture to contribute to social and economic development across the main thematic areas. In this scenario, priority could be given, for example, to the 42 countries that have reported values less than half of the highest possible IINFA. In particular, the highest priority could be given to the 12 countries with total integration of the fisheries and aquaculture sector scoring lower than 25 percent of the highest possible IINFA, namely, Algeria, Botswana, Ethiopia, Guinea-Bissau, Lesotho, Mali, the Niger, Somalia, South Sudan, Sudan, Tunisia and Zimbabwe. In these countries, advocacy efforts should be geared towards the development of fisheries and aquaculture in order to contribute to each of the five thematic areas.

TABLE 15
Countries by IRFA and IIFA ranking

IRFA \ IIFA	Negligible	Low	Medium	High	Very high
Negligible	na	na	na	na	na
Low	Botswana Lesotho	Algeria Ethiopia Guinea-Bissau Niger Somalia South Sudan Sudan Zimbabwe	Eswatini Djibouti Kenya	na	na
Medium	na	Burkina Faso Central African Republic Liberia Mali Rwanda	Burundi Eritrea	na	South Africa
High	Congo Egypt Tunisia	Benin Cameroon Cabo Verde Chad Democratic Republic of the Congo Equatorial Guinea Guinea Madagascar Mauritania Namibia Sao Tome and Principe Togo	Comoros Côte d'Ivoire Gabon Ghana Malawi Mozambique United Republic of Tanzania Zambia	Uganda	na
Very high	Libya	Angola Mauritius Nigeria Seychelles Sierra Leone	Gambia Senegal	Morocco	na

Source: Elaboration of the authors based on ranking proposed in Table 3 and Table 5.

Note: IIFA = Indicator of Inclusion of Fisheries and Aquaculture; IRFA = Indicator of Relevance of Fisheries and Aquaculture; na = not available.

For the eight RECs, 10 out of the 12 regional policy documents reviewed mentioned the fisheries and aquaculture sector. In the case of CEN-SAD and UMA, at the time of the analysis, no policy documents were available to consult. One basic policy document treating with fisheries was found for COMESA and ECOWAS. For example, the analysis of the ECOWAS Environmental Policy revealed several commendable references and provisions for fisheries and aquaculture. In detail, it provides:

2.1. To improve sustainable management of natural resources based on [...] improve knowledge about the water bodies and conservation of continental fisheries and fish farming [...].

2.4. Sustainable management of coastal, island and marine ecosystems [...] Insure sustainable practice of marine fishing protection and monitoring of shared marine environment and ichthyological resources robbing fight (ECOWAS, 2008).

The performance matrix of the inclusion of fisheries and aquaculture at the REC level is presented in Annex 8. Table 16 presents the results of the performed assessment of the overall integration of fisheries and aquaculture with REC policy documents.

In relation to the integration of fisheries and aquaculture with the REC policy documents, the analysis for each theme shows that few RECs have included fisheries and/or aquaculture in policies addressing food security, poverty eradication, gender mainstreaming, generation of foreign exchange and the ecosystem approach (Table 16). In instances, where the policy documents included these themes, they obtained, at best, a low score. It is therefore safe to conclude that the inclusion of fisheries and aquaculture into policy documents shows a very low connection with the relevance of the sector. However, Table 16 indicates that, despite RECs having generally “low” inclusion levels, the SADC, EAC and ECCAS have several of the thematic areas included in their policies. The SADC recorded the highest level of integration.

The ECOWAS, COMESA, CEN-SAD, IGAD and UMA are the RECs that could require the greatest efforts to improve or to implement policies treating with and supportive of the themes.

TABLE 16
Overall integration of fisheries and aquaculture with REC policy documents

REC	IRFA		IIFA		IINFA
SADC	10		5		15
ECCAS	10		3		13
EAC	6		4		10
ECOWAS	10		0		10
COMESA	9		0		9
UMA	9		0		9
CEN-SAD	8		0		8
IGAD	3		1		4

Source: Elaboration of the authors based on the scoring methodology proposed in Table 2 and Table 4 and ranking proposed in Table 3 and Table 5.

Note: CEN-SAD = Community of Sahel-Saharan States; COMESA = Common Market for Eastern and Southern Africa; EAC = East African Community; ECCAS = Economic Community of Central African States; ECOWAS = Economic Community of West African States; IGAD = Intergovernmental Authority on Development; IIFA = Indicator of Inclusion of Fisheries and Aquaculture; IINFA = Indicator of Integration of Fisheries and Aquaculture; IRFA = Indicator of Relevance of Fisheries and Aquaculture; REC = Regional Economic Community; UMA = Arab Maghreb Union; SADC = Southern Africa Development Community.

5.2 POVERTY ERADICATION

Assessment of the inclusion and integration by country

Sustainable Development Goal 1 “End poverty in all its forms everywhere” highlights how poverty encompasses several dimensions: the lack of access to income, social

protection, basic services and land, along with resilience to shocks and disasters (United Nations General Assembly, 2015). The contribution of fisheries and aquaculture to poverty eradication is perhaps the most acknowledged dimension in the revised policy documents. Fisheries and aquaculture tend to be included or fused in the overall assessment of the agriculture sector. The latter is usually broadly defined as including agriculture, livestock, poultry, forestry and fisheries. Most commonly, the assessments include the contribution of fisheries to employment generation, either directly or indirectly. Another indicator usually presented to assess the contribution of fisheries is the share of the sector in the national GDP.

The extent of inclusion of fishery in the Poverty Reduction Strategy Papers (PRSPs) examined is modest. PRSPs are available in 14 of the 54 African countries included in this study. Moreover, reference to fisheries and aquaculture occurs in 11 of the 14 PRSPs.⁷ Fisheries and aquaculture are usually included in the assessment of the main economic sectors, but their potential to contribute to poverty eradication is fused within other components of the agricultural sector. It is interesting to note that the countries that scored the highest in this dimension had specifically provided for the poverty eradication theme in their national fisheries and aquaculture plans. In reference to utilizing and promoting aquaculture, the approach taken is usually geared at improving household livelihoods by preventing exploitation of wild fish stocks, and to improve and sustain them. In addition, the strategic plans are usually stated so as to market fishery products better. Regrettably, in general, further actions to incorporate this sector in growth and development plans to address the selected thematic areas are not included in the action plans. Likewise, aquaculture is only acknowledged as a complementary source of income and a subsistence activity for small-scale farmers.

One of the key challenges in many countries, such as Eswatini, is that aquaculture has, so far, been limited to small-scale subsistence farming (Breuil and Grima, 2014). To bridge this socio-economic gap and spur sustainable development, national strategic documents and plans could boost these activities in order to reach the commercial level, which would require, among other things, an improvement in marketing conditions and infrastructure for trading.

The analytical findings on the policy documents regarding the extent of inclusion of fisheries and aquaculture are presented in Table 17. The second column refers to the number of documents reviewed, which addressed fishery and/or aquaculture in relation to poverty eradication. The scores assigned upon assessing the extent of inclusion of fisheries and/or aquaculture in relation to this theme are included in the third column (POV_{SCORE}). Importantly, the assigned score refers to the highest score assigned to one or more documents and not to the overall assessment of all the reviewed literature.




















The countries of Uganda, Morocco, South Africa and Eswatini were found to have a high inclusion of fisheries in poverty eradication documents. However, more interestingly, is the fact that the source of the high scoring is different for these countries. Morocco and Uganda presented several references in their policies related to the impact of fisheries on employment and economic activity. Likewise, its national fisheries and aquaculture policies were also comprehensive. Eswatini, however, scored high given the extent of inclusion in the recently implemented national fisheries (and

⁷ Information about the availability of PRSPs and FAO Country Programming Framework (CPF) and the references to fisheries and aquaculture are provided in Annex 9. PRSPs are “prepared by governments in low-income countries through a participatory process involving domestic stakeholders and external development partners, including the International Monetary Fund (IMF) and the World Bank. A PRSP describes the macroeconomic, structural and social policies and programs that a country will pursue over several years to promote broad-based growth and reduce poverty, as well as external financing needs and the associated sources of financing”. CPF “constitutes the agreement between FAO and the national government on the national priorities the Organization will address over a period of 4–6 years and the results that FAO commits to achieve within that time frame”. (FAO TERM PORTAL; available at www.fao.org/faoterm.)

TABLE 17
Inclusion of fisheries and aquaculture in poverty eradication at country level

Country	Policy documents (no.)	POV _{SCORE}	
Algeria	2	1	
Angola	1	1	
Benin	2	1	
Botswana	0	0	
Burkina Faso	5	1	
Burundi	2	1	
Cabo Verde	1	1	
Cameroon	1	1	
Central African Republic	2	1	
Chad	3	1	
Comoros	3	2	
Congo	0	0	
Côte d'Ivoire	4	2	
Democratic Republic of the Congo	3	1	
Djibouti	2	2	
Egypt	0	0	
Equatorial Guinea	1	1	
Eritrea	1	2	
Eswatini	3	3	
Ethiopia	0	0	
Gabon	1	2	
Gambia	5	1	
Ghana	1	1	
Guinea	1	1	
Guinea-Bissau	0	0	
Kenya	6	1	
Lesotho	0	0	
Liberia	3	2	
Libya	0	0	
Madagascar	2	1	
Malawi	1	1	
Mali	1	1	
Mauritania	3	1	
Mauritius	2	1	
Morocco	3	3	
Mozambique	3	1	

TABLE 17 (Continued)

Country	Policy documents (no.)	POV _{SCORE}	
Namibia	1	1	
Niger	1	1	
Nigeria	1	1	
Rwanda	1	1	
Sao Tome and Principe	1	1	
Senegal	3	2	
Seychelles	4	1	
Sierra Leone	2	1	
Somalia	4	1	
South Africa	2	3	
South Sudan	1	1	
Sudan	1	1	
Togo	1	1	
Tunisia	0	0	
Uganda	1	3	
United Republic of Tanzania	3	2	
Zambia	6	2	
Zimbabwe	0	0	
Total documents / average scoring	101/223 (45%)	1	

Source: Elaboration of the authors based on the scoring methodology proposed in Table 4.

Note: POV_{SCORE} = score of the poverty eradication.

aquaculture) policy. This represents an improvement on the sparse reference made to fisheries across few of the thematic areas in a prior poverty reduction strategy and action plan (the Kingdom of Eswatini, 2005). Although these countries scored the highest, neither scored “very high” in the assessment. Notably, also, the development of the sector is reflected in the expected outcomes of the policies to be implemented. Therefore, there is scope for improvement and greater integration of this sector in the countries. Strategic plans should specifically make fisheries and aquaculture a part of their outcomes in their development programmes.

In Uganda, for example, the development of fisheries is conceived as a long-term activity, which contributes to several aspects of national development. Because of this vision and ascribed high importance, the fisheries/aquaculture sector has assumed satisfactory integration across the thematic areas. Fish is listed among the selected commodities to develop in the framework of the National Development Plan (Uganda National Planning Authority, 2010). Furthermore, according to the Development Strategy and Investment Plan of the Ministry of Agriculture, Animal Industry and Fisheries, the benefits of the intervention in the fisheries sector are given by the fact that (MAIFF, 2010):

- About 1.5 million people have been depending on the sector for their welfare.
- Better nutrition as fish provides high-quality proteins.
- Employment is increased along the fish value chain.

By way of comparison, the Eswatini approach appears to be more short-term and

immediate, yet effective. The approach is aimed at “jump-starting” the aquaculture sector and attracting foreign investment. To illustrate, Eswatini National Strategic Policy and National Food Security Policy provide:

[...] Encouraging subsistence and small-scale commercial farmers to undertake integrated fish and agrarian farming ventures not only allows farmers to increase their levels of food security and income sources, but also reduces dependence on government and donors. [...] The commercialization of fish farming in ... [Eswatini] is an important objective of this Policy and of the National Food Security Policy. Small-scale commercial fish farming seeks to reduce the dependence of fish farmers on the Swazi state. [...] Commercial fish farming is intended to create important job opportunities, reduce rural unemployment and poverty and attract much-needed commercial and foreign investment in ... [Eswatini]’s agricultural sector (the Kingdom of Eswatini and the European Union, 2011).

According to the performed assessment, this policy reflects high inclusion of the fisheries and aquaculture sector in its development.

The countries with a low POV_{SCORE} tend to present an estimation of the contribution of fisheries and/or aquaculture to poverty eradication by either employment generation or participation in overall economic activity, but they provide no further analysis on relevance of the sector across the thematic area and development.

Table 18 shows the scores for the Poverty Eradication-Based Indicator of Integration of Fisheries and Aquaculture ($IINFA_{POV}$), calculated by adding the scores for IRFA and POV_{SCORE} , as shown in Equation 4.

The highest level of integration between the relevance of fisheries and aquaculture (IRFA) and their inclusion into policy documents in relation to poverty eradication (POV_{SCORE}) is reflected in Morocco and Senegal (Table 18), two countries from different regions. Countries that reported high scores in terms of relevance, such as Seychelles and Sierra Leone, resulted with low scores on the inclusion side. Interestingly, Uganda showed atypical results compared to other landlocked countries; this is likely attributable to the importance of Lake Victoria fisheries.

TABLE 18
Integration of fisheries and aquaculture in poverty eradication at country level

Country	IRFA	POV_{SCORE}	$IINFA_{POV}$
Algeria	3	1	4
Angola	11	1	12
Benin	7	1	8
Botswana	3	0	3
Burkina Faso	6	1	7
Burundi	6	1	7
Cabo Verde	9	1	10
Cameroon	9	1	10
Central African Republic	5	1	6
Chad	7	1	8
Comoros	9	2	11
Congo	9	0	9
Côte d’Ivoire	9	2	11
Democratic Republic of the Congo	7	1	8
Djibouti	3	2	5
Egypt	8	0	8

TABLE 18 (Continued)

Country	IRFA	POV _{SCORE}	IINFA _{POV}
Equatorial Guinea	9	1	10
Eritrea	5	2	7
Eswatini	3	3	6
Ethiopia	3	0	3
Gabon	8	2	10
Gambia	10	1	11
Ghana	9	1	10
Guinea	9	1	10
Guinea-Bissau	3	0	3
Kenya	3	1	4
Lesotho	3	0	3
Liberia	4	2	6
Libya	10	0	10
Madagascar	7	1	8
Malawi	7	1	8
Mali	4	1	5
Mauritania	7	1	8
Mauritius	11	1	12
Morocco	11	3	14
Mozambique	9	1	10
Namibia	9	1	10
Niger	3	1	4
Nigeria	11	1	12
Rwanda	5	1	6
Sao Tome and Principe	9	1	10
Senegal	12	2	14
Seychelles	12	1	13
Sierra Leone	12	1	13
Somalia	3	1	4
South Africa	4	3	7
South Sudan	1	1	2
Sudan	3	1	4
Togo	8	1	9
Tunisia	7	0	7
Uganda	9	3	12
United Republic of Tanzania	7	2	9
Zambia	7	2	9
Zimbabwe	3	0	3

Source: Elaboration of the authors based on the scoring methodology proposed in Table 2 and Table 4.

Note: IINFA_{POV} = Poverty Eradication-Based Indicator of Integration of Fisheries and Aquaculture; IRFA = Indicator of Relevance of Fisheries and Aquaculture; IINFA_{POV} = Poverty Eradication-Based Indicator of Integration of Fisheries and Aquaculture.

Assessment of the inclusion and integration by the REC

Regional documents present an overall low inclusion of fisheries and aquaculture in relation to poverty eradication. In most African countries, development programmes are structured on the basis of the Comprehensive Africa Agriculture Development Programme (CAADP), established by the African Union as part of the New Partnership for Africa's Development (NEPAD) in 2003. The CAADP aims to eliminate hunger and reduce poverty by developing agriculture through the improvement of coordination of regional and national stakeholders. The work and coordination of key players are set by the Compacts⁸ and corresponding Investment Plans signed for each country and REC. To illustrate the increasing importance of fisheries and aquaculture as neatly and succinctly put by NEPAD:

[...] markets for artisanal fishery products are also extremely important in the African continent for both coastal communities, whose livelihood strategies are heavily dependent on fisheries, and inland populations, for which fish represents usually a cheap source of protein and nutrition compared to other sources (NEPAD, 2003).

In general, fisheries and aquaculture tend to be fused with or treated as a part of other sectors, under a broad definition of agriculture, or in a joint reference to agriculture, livestock and fisheries. Unfortunately, and in spite of a policy framework and reform strategy for fisheries and aquaculture in Africa (AUC-NEPAD, 2014), SADC is the only REC with a dedicated policy document on fisheries, based on the analysis. For this REC, the protocol on fisheries emphasizes “the important role of fisheries in the social and economic well-being and livelihood of the people of the Region, notably in ensuring food security and the alleviation of poverty with the ultimate objective of its eradication” (SADC, 2006). The objectives of the protocol include, *inter alia*, “to generate economic opportunities for nationals in the Region and to alleviate poverty with the ultimate objective of its eradication” (SADC, 2006).

However, other RECs, such as the EAC, although they may not have elaborated a specific policy document on fisheries, have taken commendable steps in the policy positions they have outlined regarding fisheries and aquaculture. By illustration, Article 16 of the EAC's protocol on the environment and natural resources management is a regional fisheries policy statement (Box 1). Although brief, it is a notable step towards greater inclusion and integration. Member States should therefore ensure that, as far as practicable, they are guided in their national work plans towards this development effort.

Twenty-five African countries are members of two RECs and eight countries are members of three RECs. It has not gone unnoticed that this double and triple membership of RECs by many countries has implications for the presentation of data. This reality has the effect of skewing the data and, unavoidably, to affect any real determination of the extent of inclusion. To minimize this limitation in analysis of data, this paper has adopted the approach of highlighting any anomalies with these Member States.

Looking at the overall results for the RECs, given the very low inclusion of fisheries and aquaculture in regional policies for the poverty eradication theme (Table 19), the consolidation of the fisheries and aquaculture sector is also low (Table 20). This is in the context where the aggregated result is mainly given by the relevance of the sector at a regional level.

⁸ CAADP Compacts are agreements on the identified priority areas of investments by national and international partners (AU and Global Donor Platform for Rural Development, 2009).

BOX 1









East African Community's management of fisheries resources

Article 16 “Management of fisheries resources” of the East African Community’s protocol on the environment and natural resources management provides:

1. The Partner States shall develop and harmonise common policies, laws and strategies to promote the sound management and optimum utilization of the fisheries resources of the Community.
2. The Partner States shall develop strategies to increase and sustain fish production and marketing to contribute to poverty reduction in the Community.
3. The Partner States shall:
 - (a) Develop effective institutions and mechanisms for sustainable development and management of fisheries resources including promotion of community participation;
 - (b) Co-operate in carrying out stock assessment and monitoring of fisheries resources;
 - (c) Cooperate in the production and sharing of information on fisheries resource management, including regular monitoring of fishing efforts, fish stocks, fish habitat and other socio-economic factors of the fisheries resources;
 - (d) Put in place effective mechanisms for enforcement of fisheries related laws;
 - (e) Develop guidelines for the management of introduction of alien aquatic organisms and species;
 - (f) Take all necessary measures to regulate the capture of immature fish;
 - (g) Determine and promote use of appropriate fishing gear and fishing methods;
 - (h) Identify and protect critical habitats for fish survival in particular spawning, breeding and nursery sites and establish protected areas;
 - (i) Promote adherence to international fish quality standards; and
 - (j) Develop and promote aquaculture and cage culture.
4. The Partner States shall cooperate in the management of trans-boundary fisheries resources and to that effect the Convention for the Establishment of the Lake Victoria Fisheries Organization signed in Kisumu, Kenya, on 30 June 1994 shall apply in the management of the fisheries resources of Lake Victoria basin.

Source: EAC (2006b).

TABLE 19
Inclusion of fisheries and aquaculture in poverty eradication at the REC level

REC	Policy documents (no.)	POV _{SCORE}	
SADC	2	1	
EAC	1	1	
ECCAS	1	1	
CEN-SAD	0	0	
COMESA	0	0	
ECOWAS	0	0	
IGAD	0	0	
UMA	0	0	
Total documents	4/12 (33%)		

Source: Elaboration of the authors based on the scoring methodology proposed in Table 4.

Note: CEN-SAD = Community of Sahel-Saharan States; COMESA = Common Market for Eastern and Southern Africa; EAC = East African Community; ECCAS = Economic Community of Central African States; ECOWAS = Economic Community of West African States; IGAD = Intergovernmental Authority on Development; POVSCORE = score of the poverty eradication; REC = Regional Economic Community; UMA = Arab Maghreb Union; SADC = Southern Africa Development Community.

TABLE 20

Integration of fisheries and aquaculture in poverty eradication at the REC level

REC	IRFA	POV _{SCORE}	IINFA _{POV}
ECCAS	10	1	11
SADC	10	1	11
ECOWAS	10	0	10
COMESA	9	0	9
UMA	9	0	9
CEN-SAD	8	0	8
EAC	6	1	7
IGAD	3	0	3

Source: Elaboration of the authors based on the scoring methodology proposed in Table 2 and Table 4.

Note: CEN-SAD = Community of Sahel-Saharan States; COMESA = Common Market for Eastern and Southern Africa; EAC = East African Community; ECCAS = Economic Community of Central African States; ECOWAS = Economic Community of West African States; IGAD = Intergovernmental Authority on Development; IINFA_{POV} = Poverty Eradication-Based Indicator of Integration of Fisheries and Aquaculture; IRFA = Indicator of Relevance of Fisheries and Aquaculture; POV_{SCORE} = score of the poverty eradication; REC = Regional Economic Community; UMA = Arab Maghreb Union; SADC = Southern Africa Development Community.

5.3 FOREIGN EXCHANGE GENERATORS

Assessment of the inclusion and integration by country

The fisheries and aquaculture sector was also analysed in relation to its potential to generate foreign exchange through sales to foreign markets. Foreign exchange earnings generated by exports of fisheries and aquaculture products can contribute to national economic growth and development (FAO, 2005a; Kurien, 2005; Cai, Leung and Hishamunda, 2009).

The results of the review and assessment of fisheries in relation to the potential to generate foreign exchange are presented in Table 21. Uganda is at the top of the list, as fishery products are listed as the second source of foreign exchange. In so doing, the sector of fisheries is highlighted as being a very relevant activity in terms of employment generation along the value chain. Also, the increase of volume and value of exports is listed among the key elements of the national fisheries policy. In addition, the self-sufficiency in fishery products is included as part of the fisheries sector policy. The following findings of FAO and excerpts from strategy/policy papers briefly highlight this commendable extent of integration:

Fish exports are the second largest export earner for Uganda. [...] The average growth rate in fish exports is an impressive 48 per cent per year. The growth potential is considered high because of the forward and backward linkages and other multiplier effects over other sectors (Uganda National Planning Authority, 2010).

[...] self-sufficiency in fish and fish products, increased trade in fish and fish products within the country and a sustainable basket of exports of fish, fish products and other aquatic products with foreign exchange earning exceeding USD 300 million per annum (National Fisheries Policy, 2004).

Another group of countries is assessed at a “medium” level of inclusion of fisheries in foreign exchange generation. In these countries, rather than assessing the relevance of the fisheries sector’s exports as generator of foreign currencies, the report highlights the potential of this activity. For example, it provides:

Efforts will be made to induce domestic investors to enter into partnerships with foreign investors aimed at developing a sector that is open to export markets (IMF, 2006).

Likewise, in Djibouti, one of the objectives of the Country Strategy Paper regarding the fisheries sector is:

[...] to increase exports by bringing infrastructure up to international standards [...]. The rehabilitation of the fishing port and its standardization should result in the export on average of 2 000 tons of high value-added fish, generating 8 to 10 million US dollars in additional foreign exchange (IMF, 2004).

The exception to this general assessment is Mozambique, where the fisheries sector contributed 3 percent to GDP and 8 percent to foreign exchange (FAO, 2012).

TABLE 21
Inclusion of fisheries and aquaculture in foreign exchange generation at the country level

Country	Policy documents (no.)	FEG _{SCORE}	
Algeria	1	1	
Angola	1	1	
Benin	2	1	
Botswana	0	0	
Burkina Faso	2	1	
Burundi	1	1	
Cabo Verde	2	1	
Cameroon	0	0	
Central African Republic	0	0	
Chad	2	1	
Comoros	2	2	
Congo	0	0	
Côte d'Ivoire	3	2	
Democratic Republic of the Congo	1	0	
Djibouti	1	2	
Egypt	0	0	
Equatorial Guinea	1	1	
Eritrea	2	2	
Eswatini	0	0	
Ethiopia	0	0	
Gabon	1	2	
Gambia	5	2	
Ghana	0	0	
Guinea	1	1	
Guinea-Bissau	0	0	
Kenya	5	1	
Lesotho	0	0	
Liberia	0	0	
Libya	0	0	
Madagascar	3	2	
Malawi	1	1	

TABLE 21 (Continued)

Country	Policy documents (no.)	FEG _{SCORE}	
Mali	0	0	
Mauritania	1	1	
Mauritius	1	1	
Morocco	1	2	
Mozambique	4	2	
Namibia	1	1	
Niger	0	0	
Nigeria	0	0	
Rwanda	0	0	
Sao Tome and Principe	0	0	
Senegal	3	2	
Seychelles	1	1	
Sierra Leone	1	1	
Somalia	2	1	
South Africa	1	3	
South Sudan	0	0	
Sudan	0	0	
Togo	0	0	
Tunisia	0	0	
Uganda	4	3	
United Republic of Tanzania	2	1	
Zambia	1	1	
Zimbabwe	1	1	
Total documents /Average scoring	61/223 (28%)	1	

Source: Elaboration of the authors based on the scoring methodology proposed in Table 4.

Note: FEG_{SCORE} = score of the foreign exchange generation.

Table 22 shows the scores for the Foreign Exchange Generation-Based Indicator of Integration of Fisheries and Aquaculture (IINFA_{FEG}), calculated by adding the rank for IRFA and FEG_{SCORE}, as shown in Equation 5.

Morocco, Seychelles, Sierra Leone and Senegal are among the countries with the highest level of integration of the fisheries and aquaculture sector into national policies (Table 22). These countries achieved a medium or low level of inclusion coupled with a very high level of relevance at the national level. It is interesting to note that Uganda, despite having a lower relevance of the fisheries and aquaculture sector at a national level compared to the above-mentioned countries, reported a high value in terms of inclusion.

South Africa, despite reporting a medium rank in terms of relevance (IRFA), had a high score of inclusion. A possible rationale for this finding is that the sector's potential to generate foreign exchange, to improve its integration to contribute to national fisheries and aquaculture goals as reported in its policy documents, and to propel development in other thematic areas is recognized in the country. Therefore, a policy

and/or strategic document could be drafted and implemented to clearly articulate this importance.

TABLE 22
Integration of fisheries and aquaculture in foreign exchange generation at the country level

Country	IRFA	FEG _{SCORE}	IINFA _{FEG}
Algeria	3	1	4
Angola	11	1	12
Benin	7	1	8
Botswana	3	0	3
Burkina Faso	6	1	7
Burundi	6	1	7
Cabo Verde	9	1	10
Cameroon	9	0	9
Central African Republic	5	0	5
Chad	7	1	8
Comoros	9	2	11
Congo	9	0	9
Côte d'Ivoire	9	2	11
Democratic Republic of the Congo	7	0	7
Djibouti	3	2	5
Egypt	8	0	8
Equatorial Guinea	9	1	10
Eritrea	5	2	7
Eswatini	3	0	3
Ethiopia	3	0	3
Gabon	8	2	10
Gambia	10	2	12
Ghana	9	0	9
Guinea	9	1	10
Guinea-Bissau	3	0	3
Kenya	3	1	4
Lesotho	3	0	3
Liberia	4	0	4
Libya	10	0	10
Madagascar	7	2	9
Malawi	7	1	8
Mali	4	0	4
Mauritania	7	1	8
Mauritius	11	1	12
Morocco	11	2	13
Mozambique	9	2	11
Namibia	9	1	10
Niger	3	0	3
Nigeria	11	0	11
Rwanda	5	0	5
Sao Tome and Principe	9	0	9
Senegal	12	2	14
Seychelles	12	1	13

TABLE 22 (Continued)

Country	IRFA	FEG _{SCORE}	IINFA _{FEG}
Sierra Leone	12	1	13
Somalia	3	1	4
South Africa	4	3	7
South Sudan	1	0	1
Sudan	3	0	3
Togo	8	0	8
Tunisia	7	0	7
Uganda	9	3	12
United Republic of Tanzania	7	1	8
Zambia	7	1	8
Zimbabwe	3	1	4

Source: Elaboration of the authors based on the scoring methodology proposed in Table 2 and Table 4.









Note: FEG_{SCORE} = score of the foreign exchange generation; IINFA_{FEG} = Foreign Currency Generation-Based Indicator of Integration of Fisheries and Aquaculture; IRFA = Indicator of Relevance of Fisheries and Aquaculture.

Assessment of the inclusion and integration by RECs

The results for the RECs are similar to those outlined for poverty eradication. The extent of inclusion of fisheries and aquaculture into policies to generate foreign exchange is low to negligible (Table 23). The aggregated results are mainly given by the relevance of the sector at the REC level (Table 24).

TABLE 23

Inclusion of fisheries and aquaculture in foreign exchange generation at the REC level

REC	Policy documents (no.)	FEG _{SCORE}	
EAC	2	1	
SADC	2	1	
ECCAS	1	1	
CEN-SAD	0	0	
COMESA	0	0	
ECOWAS	0	0	
IGAD	0	0	
UMA	0	0	
Total documents	5/12 (42%)		

Source: Elaboration of the authors based on the scoring methodology proposed in Table 4.

Note: CEN-SAD = Community of Sahel-Saharan States; COMESA = Common Market for Eastern and Southern Africa; EAC = East African Community; ECCAS = Economic Community of Central African States; ECOWAS = Economic Community of West African States; FEG_{SCORE} = score of the foreign exchange generation; IGAD = Intergovernmental Authority on Development; REC = Regional Economic Community; UMA = Arab Maghreb Union; SADC = Southern Africa Development Community.

TABLE 24
Integration of fisheries and aquaculture in foreign exchange generation at the REC level

REC	IRFA	FEG _{SCORE}	IINFA _{FEG}
ECOWAS	10	0	10
ECCAS	10	1	9
SADC	10	1	9
COMESA	9	0	9
UMA	9	0	9
CEN-SAD	8	0	8
EAC	6	1	5
IGAD	3	0	3

Source: Elaboration of the authors based on the scoring methodology proposed in Table 2 and Table 4.

Note: CEN-SAD = Community of Sahel-Saharan States; COMESA = Common Market for Eastern and Southern Africa; EAC = East African Community; ECCAS = Economic Community of Central African States; ECOWAS = Economic Community of West African States; FEG_{SCORE} = score of the foreign exchange generation; IGAD = Intergovernmental Authority on Development; IINFA_{FEG} = Foreign Currency Generation-Based Indicator of Integration of Fisheries and Aquaculture; REC = Regional Economic Community; UMA = Arab Maghreb Union; SADC = Southern Africa Development Community.

5.4 FOOD SECURITY

Assessment of the inclusion and integration by country

As reported in the 2009 Declaration of the World Summit on Food Security (WSFS): “Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (FAO, 2009).

According to the WSFS definition (FAO, 2009), the four dimensions of food security are availability, access, utilization and stability:

- Food availability: sufficient quantities of food available on a consistent basis.
- Food access: having sufficient resources to obtain appropriate food for a nutritious diet (economic access); and being able to procure food products (physical access).
- Food utilization: appropriate use based on knowledge of basic nutrition and care, as well as adequate water and sanitation.
- Food stability: food supply is stable, markets are supplied throughout the year and households have enough income for steady food consumption.

Fish plays various roles in national food security in the African countries. In some countries, fish is the main source of animal protein, while in others its contribution is not significant. Although the fisheries sector does not always enjoy the primacy of importance it warrants, food insecurity is generally an issue of concern throughout Africa. Consequently, fisheries are assessed as a key sector for addressing food insecurity. In many countries, the situation is similar to the aforementioned findings concerning income and foreign exchange generation; that is, fisheries are included in the agricultural sector, and consequently, the contribution of fish to food security is not only subsumed and undetectable, but often times, is lost among the other food products.

The documents reviewed indicate that fisheries and/or aquaculture contribute to food security directly and indirectly. First, the sector contributes directly to food security by generating food resources for the dietary requirements of the population. In some countries, fish is the main source of animal protein; e.g. in 2013, fishery products represented 64.4 percent of total animal protein intake in Sierra Leone and 53.3 percent in Sao Tome and Principe (Table 8). Conversely, countries such as Ethiopia (1.6 percent), Eritrea (2.8 percent) and Lesotho (2.8 percent) registered a very low contribution (Table 8). It is also interesting to note that, despite fisheries and/or aquaculture playing a usual less significant role in landlocked countries than in coastal

nations, there are exceptions, such is the case of Uganda (30.1 percent). This finding indicates that there are other factors besides geographical location which influence the role of fisheries in national food security. These factors include, viz., the mere closeness to aquatic resources does not guarantee high consumption of fishery products. So too, while limited aquatic resources can pose a limit, it does not necessarily restrict fish consumption. It is undeniable that consumption habits and traditions also play an important role in the reliance on fishery products for food.

The fisheries and aquaculture sector also contributes indirectly to food security through income generation for households, which allows for purchasing other food items to complement the usual diet. As previously mentioned, at a national level, this sector could contribute by generating foreign exchange revenues from exports, and then enabling the purchasing of food, which could be insufficiently produced or not produced locally. However, the realization of this potential will depend heavily on the capacity and approach of exporting firms and industries and a facilitating regulatory framework and environment.

Despite being one of the countries where fish plays a minor role in national food security (Table 11), Eritrea reported the highest score in terms of the FOOD_{SCORE} (Table 25), which to a great extent includes fisheries and/or aquaculture in food-security-related policies. The Food Security Strategy gives special focus to the fisheries sector, assessing its potential to increase its contribution to food security given the state of resources, which are considered underexploited. The document, which presents an assessment of the contribution of fisheries to income generation, articulates the development of the sector in the enhancement of exports and acknowledges the role of artisanal fisheries for food security. It provides, *inter alia*:

The fisheries of Eritrea are unique in the world today, in that they are not generally overcapitalized or over exploited. While many of the fishing areas in the world have been depleted and are yielding declining returns, Eritrean fisheries resources are still relatively healthy and in some cases underexploited. Therefore, Eritrea finds itself in a unique position of managing and exploiting a relatively young and healthy resource with the potential to offer great prospects for economic growth, meeting national food security objectives and earning foreign exchange for the country. [...] The key element of the strategy is to improve the incomes of coastal villagers, which is a pre-requisite for enhancing their food security by strengthening their cooperative associations to enhance their productivity. Specific measures involve training fishermen, building cooperative storage, promoting domestic fish dietary intake, processing and marketing by the small fishermen (Government of the State of Eritrea, 2004).




















The contextual circumstances and reasons for the individual countries scoring “high” for extent of inclusion vary. In some countries such as the Comoros and Mauritius, fisheries already have a leading role in national food security, and this is reflected in the policy papers. Other countries, however, such as Eswatini and South Sudan, despite not having a strong fisheries sector, have included the development of fish production, mainly through the promotion of aquaculture, to alleviate food insecurity.

Conversely, in the case of the countries where the extent of inclusion of fisheries and/or aquaculture is assessed at a “medium” level, there is some recognition of the contribution of fish to household food security. In these countries, some indicators are usually present, but gaps exist mainly in the design of strategies, action plans and setting of priorities. This is so, as too often the fisheries sector is not adequately addressed in these strategies documents. In other instances, while the development of aquaculture or artisanal fisheries is listed or mentioned as a priority, that priority listing does not propel any action or, if any, the same is woefully lacking towards realizing this objective.

TABLE 25
Integration of fisheries and aquaculture in food security at the country level

Country	Policy documents (no.)	FOOD _{SCORE}	
Algeria	2	1	
Angola	1	1	
Benin	3	2	
Botswana	0	0	
Burkina Faso	4	1	
Burundi	2	3	
Cabo Verde	1	2	
Cameroon	1	1	
Central African Republic	1	1	
Chad	0	0	
Comoros	1	3	
Congo	0	0	
Côte d'Ivoire	4	3	
Democratic Republic of the Congo	1	2	
Djibouti	4	3	
Egypt	0	0	
Equatorial Guinea	0	0	
Eritrea	1	4	
Eswatini	3	3	
Ethiopia	2	2	
Gabon	2	2	
Gambia	5	1	
Ghana	2	2	
Guinea	0	0	
Guinea-Bissau	0	0	
Kenya	3	1	
Lesotho	0	0	
Liberia	3	1	
Libya	0	0	
Madagascar	2	1	
Malawi	3	2	
Mali	1	1	
Mauritania	2	2	
Mauritius	1	3	
Morocco	2	3	
Mozambique	4	2	

TABLE 25 (Continued)

Country	Policy documents (no.)	FOOD _{SCORE}	
Namibia	1	1	
Niger	0	0	
Nigeria	3	1	
Rwanda	1	1	
Sao Tome and Principe	1	2	
Senegal	2	2	
Seychelles	2	1	
Sierra Leone	2	1	
Somalia	3	1	
South Africa	2	3	
South Sudan	2	3	
Sudan	1	3	
Togo	1	1	
Tunisia	0	0	
Uganda	1	2	
United Republic of Tanzania	3	2	
Zambia	6	2	
Zimbabwe	1	1	
Total documents /Average scoring	93/223 (42%)	1	

Source: Elaboration of the authors based on the scoring methodology proposed in Table 4.

Note: FOOD_{SCORE} = score of the food security.

Table 26 shows the scores for the Food Security-Based Indicator of Integration of Fisheries and Aquaculture (IINFA_{FOOD}) and calculated by adding the scores for IRFA and FOOD_{SCORE}, as shown in Equation 6.

When assessing the extent of integration of fisheries and aquaculture in national food security, the Comoros remains in the top position, while other countries gain momentum, based on their improved integration of fisheries and aquaculture policies, e.g. Angola and Nigeria (Table 26). Although Djibouti, Burundi, South Sudan, Sudan and Eswatini presented a “high” score of inclusion (FOOD_{SCORE}), because of a lower importance of the sector at a national level (IRFA), they reported low integration values (IINFA_{FOOD}). However, they are contextually different and the reasons for such findings are similarly varied. The anomalous situation of Eritrea cannot be overlooked; having obtained the highest score in terms of inclusion, but due to “medium” rank in terms of relevance of the sector at a national level, the integration is low. One such remedial approach could be to first fully acknowledge the relevance and potential of fisheries to contribute to national food security and, thereafter, to integrate the sector through holistic policies. The upshot is that the data generally indicate that there have been some advances made in the implementation of actions in this field.

Assessment of the inclusion and integration by REC

The situation in the RECs is presented in Table 27. The SADC achieves the highest score due to the Protocol on Fisheries (SADC, 2006) and the inclusion of food security as the

TABLE 26
Integration of fisheries and aquaculture in food security at country level

Country	IRFA	FOOD _{SCORE}	IINFA _{FOOD}
Algeria	3	1	4
Angola	11	1	12
Benin	7	2	9
Botswana	3	0	3
Burkina Faso	6	1	7
Burundi	6	3	9
Cabo Verde	9	2	11
Cameroon	9	1	10
Central African Republic	5	1	6
Chad	7	0	7
Comoros	9	3	12
Congo	9	0	9
Côte d'Ivoire	9	3	12
Democratic Republic of the Congo	7	2	9
Djibouti	3	3	6
Egypt	8	0	8
Equatorial Guinea	9	0	9
Eritrea	5	4	9
Eswatini	3	3	6
Ethiopia	3	2	5
Gabon	8	2	10
Gambia	10	1	11
Ghana	9	2	11
Guinea	9	0	9
Guinea-Bissau	3	0	3
Kenya	3	1	4
Lesotho	3	0	3
Liberia	4	1	5
Libya	10	0	10
Madagascar	7	1	8
Malawi	7	2	9
Mali	4	1	5
Mauritania	7	2	9
Mauritius	11	3	14
Morocco	11	3	14
Mozambique	9	2	11
Namibia	9	1	10
Niger	3	0	3
Nigeria	11	1	12
Rwanda	5	1	6
Sao Tome and Principe	9	2	11
Senegal	12	2	14
Seychelles	12	1	13
Sierra Leone	12	1	13
Somalia	3	1	4

TABLE 26 (Continued)

Country	IRFA	FOOD _{SCORE}	IINFA _{FOOD}
South Africa	4	3	7
South Sudan	1	3	4
Sudan	3	3	6
Togo	8	1	9
Tunisia	7	0	7
Uganda	9	2	11
United Republic of Tanzania	7	2	9
Zambia	7	2	9
Zimbabwe	3	1	4

Source: Elaboration of the authors based on the scoring methodology proposed in Table 2 and Table 4.

Note: FOOD_{SCORE} = score of the food security; IINFA_{FOOD} = Food Security-Based Indicator of Integration of Fisheries and Aquaculture. IRFA = Indicator of Relevance of Fisheries and Aquaculture.

first objective of the Protocol. Some commendation is in order due to the inclusion of fisheries as part of the regional strategic plan (SADC, 2001) in terms of increasing food availability. In accordance with this strategy, the revitalization of a regional aquaculture development programme is presented as one of the goals. It provides:

For the purpose of promoting aquaculture, the Sector initiated an Aquaculture for Local Community (ALCOM) Programme, which was phased out. It is desirable to revive and promote this programme throughout the region since it targets local and poor communities in rural areas, and directly addresses food security concerns as well as income generation. As regards trade, the latest revenue figures from fish are estimated at 3.0 billion US dollars per year. This figure can easily be increased if the Sector can adopt a strategy to improve the quality of fish through appropriate handling, processing and conservation of the catch (SADC, 2001).









At national levels, the food security policies of the IGAD countries make significant references to fisheries and have, to some extent, integrated the sector into the thematic areas. However, there is a need to have a clear, comprehensive and solid regional perspective promulgated and programmes developed, accordingly, and supported to integrate and incorporate more fisheries in the fight to ensure food security. The conference paper “Agricultural and Food Security Challenges for the IGAD Region” presented the fisheries sector as one of the areas covered by the national programmes (Mochoge and Zziwa, 2004). Notwithstanding enumerating some of the actions foreseen at the national level, there is no inclusion of the topic at the regional level.

The EAC (2011) Food Security Action Plan mentioned the promotion of fish farming and a better exploitation of fishery resources among the activities to increase food availability, but no further assessment or lines of action are included. Notably, however, the EAC has also taken other strong policy positions on fisheries. To this end, Article 16 of the EAC’s Protocol on environment and natural resources management (EAC, 2006a) is a succinct yet powerful policy position taken regionally on fisheries (Box 1). It is hoped that such regional fisheries policy statement, sooner than later, will ignite efforts to draft specific policy papers and make commitments and strategic plans that are dedicated towards greater inclusion of fisheries in development.

As for ECCAS, the importance of the contribution of fisheries for food security, income generation, nutrition, and foreign exchange revenues is acknowledged among the fundamental objectives of the REC. In fact, a survey of the potential of the fisheries sector is listed as part of the strategic plan with a 2015 horizon (ECCAS, 2014). However, no further actions are indicated in the document.

Again, it can be seen that, among the RECs, fisheries tend to be diluted in a more general overview of the agricultural sector.

TABLE 27
Inclusion of fisheries and aquaculture in food security at the REC level

REC	Policy documents (no.)	FOOD _{SCORE}	
SADC	2	2	
EAC	2	1	
ECCAS	1	1	
IGAD	1	1	
CEN-SAD	0	0	
COMESA	0	0	
ECOWAS	0	0	
UMA	0	0	
Total documents	6/12 (50%)		

Source: Elaboration of the authors based on the scoring methodology proposed in Table 4.

Note: CEN-SAD = Community of Sahel-Saharan States; COMESA = Common Market for Eastern and Southern Africa; EAC = East African Community; ECCAS = Economic Community of Central African States; ECOWAS = Economic Community of West African States; FOOD_{SCORE} = score of the food security; IGAD = Intergovernmental Authority on Development; REC = Regional Economic Community; UMA = Arab Maghreb Union; SADC = Southern Africa Development Community.

In the aggregated analysis (Table 28), the most interesting result is in the case of the SADC. With a medium inclusion of fisheries and/or aquaculture in food security (FOOD_{SCORE}) and a very high relevance of the sector (IRFA), SADC scored the highest integration of the fisheries and aquaculture sector into food security (IINFA_{FOOD}) among the RECs.

TABLE 28
Integration of fisheries and aquaculture in food security at the REC level

REC	IRFA	FOOD _{SCORE}	IINFA _{FOOD}
SADC	10	2	12
ECCAS	10	1	11
ECOWAS	10	0	10
COMESA	9	0	9
UMA	9	0	9
CEN-SAD	8	0	8
EAC	6	1	7
IGAD	3	1	4

Source: Elaboration of the authors based on the scoring methodology proposed in Table 2 and Table 4.

Note: CEN-SAD = Community of Sahel-Saharan States; COMESA = Common Market for Eastern and Southern Africa; EAC = East African Community; ECCAS = Economic Community of Central African States; ECOWAS = Economic Community of West African States; FOOD_{SCORE} = score of the food security; IGAD = Intergovernmental Authority on Development; IINFA_{FOOD} = Food Security-Based Indicator of Integration of Fisheries and Aquaculture; IRFA = Indicator of Relevance of Fisheries and Aquaculture; REC = Regional Economic Community; UMA = Arab Maghreb Union; SADC = Southern Africa Development Community.

5.5 ECOSYSTEM APPROACH TO FISHERIES AND TO AQUACULTURE

Assessment of the inclusion and integration by country

The ecosystem approach to fisheries (EAF) “strives to balance diverse societal objectives, by taking account of the knowledge and uncertainties of biotic, abiotic and human components of ecosystems and their interactions and applying an integrated approach to fisheries within ecologically meaningful boundaries” (FAO Fisheries Department, 2003). An ecosystem approach to aquaculture (EAA) “is a strategy for the

integration of the activity within the wider ecosystem such that it promotes sustainable development, equity and resilience of interlinked social-ecological systems” (FAO, 2010). The EAF/EAA “is a way of managing fisheries and aquaculture that balances the different objectives of society (e.g. ecological and economic objectives), by applying an integrated approach across geographical areas that reflect natural ecosystems” (Staples and Funge-Smith, 2009).

The principles pertaining to EAF/EAA have been included in a number of international agreements and conference documents, from the World Conference on the Human Environment of 1972 to the World Summit on Sustainable Development of 2002 (FAO Fisheries Department, 2003).

In 2005, the twenty-sixth session of the Committee on Fisheries (COFI) indicated the need for a greater understanding on how the ecosystem approach should be applied in practice (FAO, 2005b). The need for further work to effectively implement the EAF/EAA was further underlined at the thirtieth session of COFI (FAO, 2013).

This practical understanding is therefore very recent and perhaps explains why 30 out of the 54 surveyed African countries made no mention of the ecosystem approach in relation to fisheries and aquaculture in their policies (Table 29). Therefore, in “form”, there is no inclusion, but “substantively”, there is an appreciation, albeit, not sufficient, of this approach in policies. Very few references to EAF/EAA appear in the policies reviewed (Table 29). The focus is generally on productive conditions and, when available, an assessment on the state of resources. When a more holistic perspective is included, it is usually associated with the need to articulate activities related to water resources. No specific policy on the ecosystem approach to fisheries and to aquaculture was found. The relation is presented either by the deterioration of water quality that affects aquaculture and fisheries, and facilitates the expansion of weeds, or by the competition for water supplies and spaces between aquaculture, livestock and irrigation.

In taking a “substantive” approach in analysing, however, it is found that, in the countries that scored “low” in the assessment of the integration of the ecosystem approach in policies, there is still some general appreciation of its importance through reference to environmental issues. It is generally the case, where, instead of dealing with the fisheries and aquaculture sector as an isolated productive activity, its concerns are fused with the usual environmental issues. However, there are no further detailed dimensions to this approach. The following are examples of this type of references.

- “Given the limited opportunities for economic diversification, the country’s future growth will continue to depend on the expansion of tourism and fisheries, which are inextricably linked to the quality of the natural and physical environment” (African Development Bank, 2011).
- “Developing integrated water resources management systems for agricultural production (crops, livestock and aquaculture and power generation” is one of the proposed areas for improvement in the Post Compact Road Map for the United Republic of Tanzania (SADC *et al.*, 2010).

Countries that scored better in the extent of inclusion of the ecosystem approach, in some cases, explicitly made reference to the importance of the implementation of EAF/EAA, e.g. Eswatini. Others have components in their policies that go beyond the expansion of production and somehow articulate the development of fisheries and aquaculture with the environmental preservation and the improvement in the management of the impact on and by the environment. Strategy and policy statements for three countries are presented in Box 2.

The fact that EAF/EAA is relatively a new concept can be one of the factors that resulted in the low extent of inclusion in national policies. However, as detailed above, the fisheries and aquaculture sector is indeed recognized, generally when concerns for the environment and other scarce resources are being provided for in policies. In the

premises, there are noticeable gaps and a need for specific development policies being created, which utilize EAF/EAA.

BOX 2

Strategy and policy statements on EAF**Strategy 1.3.5 Ecosystems Approach to Fisheries Management**

“The Ministry is committed to the implementation of the ecosystem approach to fisheries (EAF) management. The implementation of EAF obliges the Fisheries Sector to consider holistically the impacts of a decision on the whole ecosystem in question, based on the best available scientific evidence and practice at the time” (the Kingdom of Eswatini and the European Union, 2011).

“Promotion of a conservation policy for the marine habitat and the resources in the framework of an integrated management of coastal zones: It remains a constant concern, taking into account the progressive state of degradation of marine ecosystems. The Government will implement in relation to the partners in development, professional institutions and civil society, a rational, integrated and sustainable marine and coastal environments management” (Ministère de l’Économie maritime, des Transports Maritimes, de la Pêche et de la Pisciculture du Sénégal, 2007).

“Apart from being a major food source, fisheries also provide a livelihood to many otherwise disadvantaged communities as well as being a major source of export earnings for the country. There is need for a paradigm that is focused on both biological aspects of fisheries and on social and environmental concerns [...] Formal mechanisms are needed to promote a holistic approach to ecosystems that contain fisheries and to ensure that concerns of the fisheries sector are taken into account” (Uganda National Planning Authority 2011).

TABLE 29
Inclusion of fisheries and aquaculture in the ecosystem approach at the country level

Country	Policy documents (no.)	SUST _{SCORE}	
Algeria	0	0	
Angola	1	1	
Benin	0	0	
Botswana	0	0	
Burkina Faso	1	1	
Burundi	1	1	
Cabo Verde	0	0	
Cameroon	0	0	
Central African Republic	0	0	
Chad	1	1	
Comoros	0	0	
Congo	0	0	
Côte d’Ivoire	1	1	
Democratic Republic of the Congo	0	0	
Djibouti	1	1	
Egypt	0	0	
Equatorial Guinea	0	0	
Eritrea	0	0	

TABLE 29 (Continued)

Country	Policy documents (no.)	SUST _{SCORE}	
Eswatini	1	2	
Ethiopia	1	1	
Gabon	0	0	
Gambia	0	0	
Ghana	1	1	
Guinea	0	0	
Guinea-Bissau	1	1	
Kenya	1	2	
Lesotho	0	0	
Liberia	1	1	
Libya	0	0	
Madagascar	2	1	
Malawi	0	0	
Mali	0	0	
Mauritania	0	0	
Mauritius	0	0	
Morocco	2	3	
Mozambique	1	1	
Namibia	1	1	
Niger	0	0	
Nigeria	0	0	
Rwanda	0	0	
Sao Tome and Principe	0	0	
Senegal	2	2	
Seychelles	1	1	
Sierra Leone	0	0	
Somalia	2	1	
South Africa	2	3	
South Sudan	1	1	
Sudan	0	0	
Togo	0	0	
Tunisia	0	0	
Uganda	1	2	
United Republic of Tanzania	3	1	
Zambia	1	1	
Zimbabwe	0	0	
Total documents /Average scoring	30/223 (13%)	1	

Source: Elaboration of the authors based on the scoring methodology proposed in Table 4.

Note: SUST_{SCORE} = score of the sustainable ecosystem.

Table 30 shows the scores for the Sustainable Ecosystem-Based Indicator of Integration of Fisheries and Aquaculture (IINFA_{SUST}), calculated by adding the scores for IRFA and SUST_{SCORE}, as shown in Equation 7.

The extent or level of integration of the ecosystem approach among countries to fisheries and aquaculture is generally not very high for many countries given the poor inclusion at the policy level (Table 30). In enumerating some findings, Morocco and Senegal showed the best performance for both indicators among the studied countries; although Senegal has one of the highest level in terms of integration of fisheries and aquaculture (IINFA_{SUST}), the inclusion indicator scored medium (SUST_{SCORE}). Seychelles ranked “high” relevance, and, given its slightly lower inclusion at the policy level, is ranked after Morocco and Senegal. Other countries such as Kenya and Eswatini also obtained medium scores in terms of inclusion, but due to lesser relevance of the fisheries and aquaculture sector (IRFA), they ranked at a lower level in terms of integration.

TABLE 30

Integration of fisheries and aquaculture in the ecosystem approach at the country level

Country	IRFA	SUST _{SCORE}	IINFA _{SUST}
Algeria	3	0	3
Angola	11	1	12
Benin	7	0	7
Botswana	3	0	3
Burkina Faso	6	1	7
Burundi	6	1	7
Cabo Verde	9	0	9
Cameroon	9	0	9
Central African Republic	5	0	5
Chad	7	1	8
Comoros	9	0	9
Congo	9	0	9
Côte d'Ivoire	9	1	10
Democratic Republic of the Congo	7	0	7
Djibouti	3	1	4
Egypt	8	0	8
Equatorial Guinea	9	0	9
Eritrea	5	0	5
Eswatini	3	2	5
Ethiopia	3	1	4
Gabon	8	0	8
Gambia	10	0	10
Ghana	9	1	10
Guinea	9	0	9
Guinea-Bissau	3	1	4
Kenya	3	2	5
Lesotho	3	0	3
Liberia	4	1	5
Libya	10	0	10
Madagascar	7	1	8
Malawi	7	0	7
Mali	4	0	4

TABLE 30 (Continued)

Country	IRFA	SUST _{SCORE}	IINFA _{SUST}
Mauritania	7	0	7
Mauritius	11	0	11
Morocco	11	3	14
Mozambique	9	1	10
Namibia	9	1	10
Niger	3	0	3
Nigeria	11	0	11
Rwanda	5	0	5
Sao Tome and Principe	9	0	9
Senegal	12	2	14
Seychelles	12	1	13
Sierra Leone	12	0	12
Somalia	3	1	4
South Africa	4	3	7
South Sudan	1	1	2
Sudan	3	0	3
Togo	8	0	8
Tunisia	7	0	7
Uganda	9	2	11
United Republic of Tanzania	7	1	8
Zambia	7	1	8
Zimbabwe	3	0	3

Source: Elaboration of the authors based on the scoring methodology proposed in Table 2 and Table 4.

Note: IINFA_{SUST} = Sustainable Ecosystem-Based Indicator of Integration of Fisheries and Aquaculture; IRFA = Indicator of Relevance of Fisheries and Aquaculture; SUST_{SCORE} = score of the sustainable ecosystem.

Assessment of the inclusion and integration by REC

The extent of inclusion of EAF/EAA at the regional level is even less significant. According to the performed assessment, reference is made only in one document (Table 31). This is not surprising, given the infrequent articulation of the approach in national policies as outlined earlier. Likewise, in instances where there is reference to such an approach in policy documents dealing with fisheries and aquaculture, it is too often not given primacy as a thematic objective. For example, as noted by EAC (2006b):

Fisheries production still faces some constraints. These include cultivation into the fringing wetlands and destruction of vegetation causing erosion, siltation and pollutants into water bodies, growth and spread of undesirable aquatic weeds such as water hyacinth, increased illegal fishing practices, and increased fish postharvest losses.

The aggregated results are given by the relevance of the sector at the REC level (Table 32). The increase in the levels of inclusion of the ecosystem approach in future regional policies requires not only a better knowledge of the concept, through capacity building, but also a higher degree of articulation of sectoral policies. The ecosystem approach should be viewed and treated in strategic development plans as an approach separate from the usual general environmental approach and be given primacy when dealing with matters relating to fisheries and aquaculture.

TABLE 31
Inclusion of fisheries and aquaculture in the ecosystem approach at the REC level

REC	Policy documents (no.)	SUST _{SCORE}	
EAC	1	1	◆
CEN-SAD	0	0	◆
COMESA	0	0	◆
ECCAS	0	0	◆
ECOWAS	0	0	◆
IGAD	0	0	◆
SADC	0	0	◆
UMA	0	0	◆
Total documents	1/12 (8%)		

Source: Elaboration of the authors based on the scoring methodology proposed in Table 4.

Source: CEN-SAD = Community of Sahel-Saharan States; COMESA = Common Market for Eastern and Southern Africa; EAC = East African Community; ECCAS = Economic Community of Central African States; ECOWAS = Economic Community of West African States; IGAD = Intergovernmental Authority on Development; REC = Regional Economic Community; SUST_{SCORE} = score of the sustainable ecosystem; UMA = Arab Maghreb Union; SADC = Southern Africa Development Community.

TABLE 32
Integration of fisheries and aquaculture in the ecosystem approach at the REC level

REC	IRFA	SUST _{SCORE}	IINFA _{SUST}
ECCAS	10	0	10
ECOWAS	10	0	10
SADC	10	0	10
COMESA	9	0	9
UMA	9	0	9
CEN-SAD	8	0	8
EAC	6	1	7
IGAD	3	0	3

Source: Elaboration of the authors based on the scoring methodology proposed in Table 2 and Table 4.

Note: CEN-SAD = Community of Sahel-Saharan States; COMESA = Common Market for Eastern and Southern Africa; EAC = East African Community; ECCAS = Economic Community of Central African States; ECOWAS = Economic Community of West African States; IGAD = Intergovernmental Authority on Development; IINFA_{FOOD} = Food Security-Based Indicator of Integration of Fisheries and Aquaculture; IRFA = Indicator of Relevance of Fisheries and Aquaculture; REC = Regional Economic Community; SUST_{SCORE} = score of the sustainable ecosystem; UMA = Arab Maghreb Union; SADC = Southern Africa Development Community.

5.6 GENDER MAINSTREAMING

Assessment of the inclusion and integration by country

The concept of gender mainstreaming, although already mentioned in the Third World Conference on Women, held in Nairobi, Kenya, from 15 to 26 July 1985 (United Nations, 1985), was formally featured in the Fourth Conference on Women, held in Beijing, China, from 4 to 15 September 1995 (United Nations, 1995).

The agreed conclusions (1997/2) of the United Nations Economic and Social Council (ECOSOC) defined gender mainstreaming as:

...the process of assessing the implications for women and men of any planned action, including legislation, policies or programmes, in all areas and at all levels.

It is a strategy for making women's as well as men's concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres so that women and men benefit equally and inequality is not perpetuated. The ultimate goal is to achieve gender equality (United Nations General Assembly, 1997).

Gender mainstreaming refers to public policies oriented to gender equality.⁹ In many countries, it can be observed in the differentiation of the work of men and women in the fisheries and aquaculture sector. The most common differential role is for men to produce fish and women to sell it. It also has been found that the role of women in the sector is usually acknowledged as important. Likewise, more often than not, women and youth are considered among the population groups most vulnerable to unemployment, poverty and food insecurity. While a deeper analysis should be performed at the country level to understand the causes of these gaps, these shortcomings reveal a wide scope to enhance the inclusion of gender issues and actions in the fisheries and aquaculture policies of most countries and RECs.

Gender is usually presented as a crosscutting issue in national policies, but then very few genderspecific interventions and components are followed through. Although the role of women is in some cases acknowledged, the specificities of the fisheries and aquaculture sector and the key role of women are often lost in a general consideration of fisheries and aquaculture within the wider agricultural sector.

The countries of the Gambia and South Africa obtained the highest scores in terms of inclusion, followed by Malawi and Uganda (Table 33). These countries include reasonably clear and comprehensive gender components in their national fisheries policies. However, Uganda and Malawi ranked lower because their policy documents do not include specific actions to achieve the objectives. Excerpts on gender mainstreaming for the Gambia and Malawi are presented in Box 3.

The policy documents that received a medium score for gender mainstreaming generally included a clear action plan for ameliorating the situation of women. In other instances, further assessment on the role of women in the fisheries sector is included, to an extent where it is clear that, in those countries, gender mainstreaming is a crosscutting issue in all sectors, inclusive of fisheries and aquaculture. These countries are not scored higher, however, because of the lack of further articulation of gender issues and sustainability strategies relating to this sector.

Warranting commendation, the Poverty Reduction Strategy Paper for Zambia, under the priority area “Fisheries Development”, envisages the support of the Government to “strengthen gender balanced researchextensionfarmer linkages” (World Bank, 2007).

Table 34 shows the scores for the Gender Mainstreaming-Based Indicator of Integration of Fisheries and Aquaculture (IINFA_{GEN}), calculated by adding the scores for IRFA and GEN_{SCORE}, as shown in Equation 8.

With regard to the ecosystem approach, the review revealed a low mainstreaming of gender issues in national policy documents (Table 34).

⁹ Gender equality “refers to the equal rights, responsibilities and opportunities of women and men and girls and boys. Equality does not mean that women and men will become the same but that women's and men's rights, responsibilities and opportunities will not depend on whether they are born male or female. Gender equality implies that the interests, needs and priorities of both women and men are taken into consideration, recognizing the diversity of different groups of women and men. Gender equality is not a women's issue but should concern and fully engage men as well as women. Equality between women and men is seen both as a human rights issue and as a precondition for, and indicator of, sustainable people-centered development” (UN Women, 2018).

BOX 3

Example of gender mainstreaming inclusion**Policy on Gender, Youths and Fisheries Sector Development (from the Fisheries Policy of the Gambia, Draft, Department of State and Water Resources)**

In artisanal inland and marine fisheries, women are mainly involved in the post-harvest activities. Women spend long hours in activities related to fish processing and marketing and have considerable influence on business decisions in the artisanal subsector.

Gambian youths, particularly the males, are not significantly engaged in the fisheries sector due to several factors such as lack of interest in fishing, insufficient sensitization and awareness of the potentials in the sector, difficulties in mobilizing the youth in fisheries activities because of their low regard for the profession, lack of training in fishing techniques and lack of access to credit facilities.

1. Objective

The policy objective is to enhance effective participation of women and youths at all levels in the fisheries sector, including fisheries management and administration, trade and investment.

2. Strategies

Government strategies for gender shall be to:

- Support and facilitate skills development and improved knowledge of women and youths in fisheries sector;
- Increase the number of adequately trained youths and women in fisheries related activities such as management, handling, processing and marketing;
- Train personnel of the Department of State responsible for fisheries and the Department of Fisheries in gender analysis and planning;
- Sensitize fishing communities on gender related issues and encourage participation of women in co management systems;
- Facilitate the access to finance and appropriate technologies for use by youths and women operators and investors;
- Encourage and support Gambian youths to engage in both artisanal and industrial fishing operations;
- Facilitate and encourage youths and women in fish production by promoting ownership of fishing units, fish processing establishments and marketing outlets both in the artisanal and industrial fisheries; and
- Encourage the formation of associations of youths and women fisheries operators to collectively enable them to address issues that are particularly gender sensitive and relate to youths development.

Fisheries Sector Guiding Principles and Priorities (from the National Fisheries Policy of Uganda)

(e). Gender and equity: Fisheries development will include the active participation of women and the youth. There will be equitable representation in decision making, shared responsibilities and benefit sharing by all groups...

Policy area N° 2 – Decentralisation and community involvement in fisheries management

Policy objectives:

3. To advance the involvement of women, youth and less advantaged members of society in fisheries resources management.

Gender and Equity Issues in Fisheries

The government will ensure that women, the youth and poor people in particular are beneficiaries of the development of the fisheries sector. The policy recognises that there are other sections of society that are often marginalized in development processes, and that these groups are frequently the most dependent on fisheries resources for their livelihoods. The government will address this through its policy and equity and in employment and business opportunities, and by ensuring equity in the access, tenure, participation and sharing of benefits that accrue in fisheries.

The government shall ensure that reformed institutional structures promote the active participation of women, men and vulnerable groups.

TABLE 33
Inclusion of fisheries and aquaculture in gender mainstreaming at the country level

Country	Policy documents (no.)	GEN _{SCORE}	
Algeria	0	0	
Angola	1	1	
Benin	0	0	
Botswana	0	0	
Burkina Faso	2	1	
Burundi	0	0	
Cabo Verde	0	0	
Cameroon	0	0	
Central African Republic	1	2	
Chad	1	2	
Comoros	1	1	
Congo	0	0	
Côte d'Ivoire	1	1	
Democratic Republic of the Congo	1	2	
Djibouti	1	2	
Egypt	0	0	
Equatorial Guinea	0	0	
Eritrea	0	0	
Eswatini	1	1	
Ethiopia	1	1	
Gabon	1	2	
Gambia	3	4	
Ghana	1	2	
Guinea	0	0	
Guinea-Bissau	0	0	
Kenya	2	1	
Lesotho	0	0	
Liberia	1	1	
Libya	0	0	
Madagascar	1	0	
Malawi	3	3	

TABLE 33 (Continued)

Country	Policy documents (no.)	GEN _{SCORE}	
Mali	0	0	
Mauritania	0	0	
Mauritius	0	0	
Morocco	2	1	
Mozambique	0	0	
Namibia	1	1	
Niger	0	0	
Nigeria	0	0	
Rwanda	1	2	
Sao Tome and Principe	0	0	
Senegal	4	2	
Seychelles	1	1	
Sierra Leone	1	1	
Somalia	0	0	
South Africa	2	4	
South Sudan	0	0	
Sudan	0	0	
Togo	0	0	
Tunisia	0	0	
Uganda	1	3	
United Republic of Tanzania	3	1	
Zambia	2	2	
Zimbabwe	0	0	
Total documents /Average scoring	41/223 (18%)	1	

Source: Elaboration of the authors based on the scoring methodology proposed in Table 4.

Note: GEN_{SCORE} = score of the gender mainstreaming.

TABLE 34

Integration of fisheries and aquaculture in gender mainstreaming at the country level

Country	IRFA	GEN _{SCORE}	IINFA _{GEN}
Algeria	3	0	3
Angola	11	1	12
Benin	7	0	7
Botswana	3	0	3
Burkina Faso	6	1	7
Burundi	6	0	6
Cabo Verde	9	0	9
Cameroon	9	0	9
Central African Republic	5	2	7
Chad	7	2	9
Comoros	9	1	10
Congo	9	0	9
Côte d'Ivoire	9	1	10
Democratic Republic of the Congo	7	2	9
Djibouti	3	2	5
Egypt	8	0	8
Equatorial Guinea	9	0	9
Eritrea	5	0	5
Eswatini	3	1	4
Ethiopia	3	1	4
Gabon	8	2	10
Gambia	10	4	14
Ghana	9	2	11
Guinea	9	0	9
Guinea-Bissau	3	0	3
Kenya	3	1	4
Lesotho	3	0	3
Liberia	4	1	5
Libya	10	0	10
Madagascar	7	0	7
Malawi	7	3	10
Mali	4	0	4
Mauritania	7	0	7
Mauritius	11	0	11
Morocco	11	1	12
Mozambique	9	0	9
Namibia	9	1	10
Niger	3	0	3
Nigeria	11	0	11
Rwanda	5	2	7
Sao Tome and Principe	9	0	9
Senegal	12	2	14
Seychelles	12	1	13
Sierra Leone	12	1	13
Somalia	3	0	3

TABLE 34 (Continued)

Country	IRFA	GEN _{SCORE}	IINFA _{GEN}
South Africa	4	4	8
South Sudan	1	0	1
Sudan	3	0	3
Togo	8	0	8
Tunisia	7	0	7
Uganda	9	3	12
United Republic of Tanzania	7	1	8
Zambia	7	2	9
Zimbabwe	3	0	3

Source: Elaboration of the authors based on the scoring methodology proposed in Table 2 and Table 4.









Note: GEN_{SCORE} = score of the gender mainstreaming; IINFA_{GEN} = Gender Mainstreaming-Based Indicator of Integration of Fisheries and Aquaculture; IRFA = Indicator of Relevance of Fisheries and Aquaculture.

Assessment of the inclusion and integration by REC

Low integration is also detected at the REC level. However, this does not necessarily mean that there is a causality relationship between national policies towards regional policies. It is clear though that, generally, the overview and guidelines that regional policies give do influence national policies. Likewise, there is clearly a link between the inclusion and/or omission of key topics at both levels. References to gender issues related to fisheries could only be found in the SADC documents, which scored as low inclusion (Table 35). The Protocol on Fisheries of the SADC recognizes “the need to promote gender equality”, stating among its principles that, “in the implementation of this Protocol State Parties shall promote gender equality and address any potential inequalities” (SADC, 2006). On the other hand, no reference to the role of women in fisheries is given in the SADC Protocol on Gender and Development (SADC, 2008).

TABLE 35

Inclusion of fisheries and aquaculture in gender mainstreaming at the REC level

REC	Policy documents (no.)	GEN _{SCORE}	
SADC	1	1	
CEN-SAD	0	0	
COMESA	0	0	
EAC	0	0	
ECCAS	0	0	
ECOWAS	0	0	
IGAD	0	0	
UMA	0	0	
Total documents	1/12 (8%)		

Source: Elaboration of the authors based on the scoring methodology proposed in Table 4.

Note: CEN-SAD = Community of Sahel-Saharan States; COMESA = Common Market for Eastern and Southern Africa; EAC = East African Community; ECCAS = Economic Community of Central African States; ECOWAS = Economic Community of West African States; GEN_{SCORE} = score of the gender mainstreaming; IGAD = Intergovernmental Authority on Development; REC = Regional Economic Community; UMA = Arab Maghreb Union; SADC = Southern Africa Development Community.

The aggregated results are given by the relevance of the sector at the REC level (Table 36). Gender-based issues need to be addressed within their particularities both at a regional and national level. There is also need for an acknowledgement of gender mainstreaming being a crosscutting issue, which should be provided for and reflected in better designed “genderspecific” components in policy documents.

TABLE 36
Integration of fisheries and aquaculture in gender mainstreaming at the REC level

REC	IRFA	GEN _{SCORE}	IINFA _{GEN}
SADC	10	1	11
ECCAS	10	0	10
ECOWAS	10	0	10
COMESA	9	0	9
UMA	9	0	9
CEN-SAD	8	0	8
EAC	6	0	6
IGAD	3	0	3

Source: Elaboration of the authors based on the scoring methodology proposed in Table 2 and Table 4.

Note: CEN-SAD = Community of Sahel-Saharan States; COMESA = Common Market for Eastern and Southern Africa; EAC = East African Community; ECCAS = Economic Community of Central African States; ECOWAS = Economic Community of West African States; GEN_{SCORE} = score of the gender mainstreaming; IGAD = Intergovernmental Authority on Development; IINFA_{GEN} = Gender Mainstreaming-Based Indicator of Integration of Fisheries and Aquaculture; IRFA = Indicator of Relevance of Fisheries and Aquaculture; REC = Regional Economic Community; UMA = Arab Maghreb Union; SADC = Southern Africa Development Community.

6. Assessment of the discrepancy of fisheries and aquaculture in the national and regional policy documents

This chapter assesses the discrepancy of fisheries and aquaculture in the national and regional policy documents. Table 37 shows the overall discrepancy between fisheries and aquaculture relevance and inclusion at the country level. The discrepancy between fisheries and aquaculture relevance and inclusion at the country level by theme is presented in Annex 12.

The countries that revealed the lowest degrees of connection between relevance and inclusion are those with high discrepancy values. In these countries, fisheries and aquaculture activities are relevant, but the inclusion of the sector into policies is low. They ultimately reported higher in discrepancy, as gleaned from Table 37. These include countries such as Libya, Congo, Nigeria, Egypt and Sierra Leone. For the 14 countries ranging from the highest discrepancy value to half of that value,¹⁰ the efforts should be directed to improve the extent of inclusion of the fisheries and aquaculture sector and its potential role into policy documents in terms of promoting food security, poverty eradication, gender mainstreaming, generation of foreign exchange and EAF/EAA.

The end of Table 37 shows those countries where fisheries and aquaculture did not feature as an important sector, but where the studied themes are at least, to some extent, included in the policies.

It is worth highlighting that in Uganda, where fisheries and aquaculture are relevant, the studied themes are also included in national policy documents, leading to a negative discrepancy score (Table 37). Given the fact that IDFA is a complementary indicator to IINFA, the discrepancy value for Uganda reflects the high integration result.

This assessment also allows for focus on an appropriate approach for those countries that have a medium level of integration (section 5.1), depending on the values they obtained in the discrepancy analysis. It is possible to assess if the focus should be on the development of the production sector, or, whether attention should be channelled towards greater inclusion of fisheries and aquaculture into the policy design processes.

Table 38 shows the overall discrepancy between fisheries and aquaculture relevance and inclusion in policy documents at the REC level. The discrepancy analysis by theme (Annex 13) highlighted the lack of inclusion of fisheries and aquaculture in REC policies, which resulted in IDFA scores solely being determined by the relevance of the fisheries and aquaculture sector at the national level.

Based on the analysed documents, the performed analysis seems to highlight the need for improvements for ECOWAS, COMESA, UMA and CENSAD. The fisheries and aquaculture sector is relevant in these RECs, but there is no inclusion of fisheries and aquaculture in relation to the main policies of food security, poverty eradication, gender mainstreaming, generation of foreign exchange or the ecosystem approach.

Improving fisheries and aquaculture policies in the RECs would provide guidance for their Member States. Likewise, any review and amendment to regional policies, to

¹⁰ Calculations were performed having IDFA equal to 12 as the highest value.

TABLE 37
Overall discrepancy between relevance and inclusion at the country level

Country	IRFA	IIFA	IDFA
Algeria	3	3	0
Angola	11	5	6
Benin	7	4	3
Botswana	3	0	3
Burkina Faso	6	5	1
Burundi	6	6	0
Cabo Verde	9	4	5
Cameroon	9	2	7
Central African Republic	5	4	1
Chad	7	5	2
Comoros	9	8	1
Congo	9	0	9
Côte d'Ivoire	9	9	0
Democratic Republic of the Congo	7	5	2
Djibouti	3	10	-7
Egypt	8	0	8
Equatorial Guinea	9	2	7
Eritrea	5	8	-3
Eswatini	3	9	-6
Ethiopia	3	4	-1
Gabon	8	8	0
Gambia	10	8	2
Ghana	9	6	3
Guinea	9	2	7
Guinea-Bissau	3	1	2
Kenya	3	6	-3
Lesotho	3	0	3
Liberia	4	5	-1
Libya	10	0	10
Madagascar	7	5	2
Malawi	7	7	0
Mali	4	2	2
Mauritania	7	4	3
Mauritius	11	5	6
Morocco	11	12	-1
Mozambique	9	6	3
Namibia	9	5	4
Niger	3	1	2
Nigeria	11	2	9
Rwanda	5	4	1
Sao Tome and Principe	9	3	6
Senegal	12	10	2
Seychelles	12	5	7
Sierra Leone	12	4	8
Somalia	3	4	-1

TABLE 37 (Continued)

Country	IRFA	IIFA	IDFA
South Africa	4	16	-12
South Sudan	1	5	-4
Sudan	3	4	-1
Togo	8	2	6
Tunisia	7	0	7
Uganda	9	13	-4
United Republic of Tanzania	7	7	0
Zambia	7	8	-1
Zimbabwe	3	2	1

Source: Elaboration of the authors based on the scoring methodology proposed in Table 2 and Table 4 and ranking proposed in Table 3 and Table 5.

Note: IDFA = Indicator of Discrepancy of Fisheries and Aquaculture; IIFA = Indicator of Inclusion of Fisheries and Aquaculture; IRFA = Indicator of Relevance of Fisheries and Aquaculture.

further include fisheries and aquaculture, should also take into consideration lessons learned at the country level. The country context does play a part in understanding and catering to inclusion of the sector across the thematic areas.

TABLE 38

Overall discrepancy between relevance and inclusion at the REC level

REC	IRFA	IIFA	IDFA
ECOWAS	10	0	10
COMESA	9	0	9
UMA	9	0	9
CEN-SAD	8	0	8
ECCAS	10	3	7
SADC	10	5	5
EAC	6	4	2
IGAD	3	1	2

Source: Elaboration of the authors based on the scoring methodology proposed in Table 2 and Table 4 and ranking proposed in Table 3 and Table 5.

Note: CEN-SAD = Community of Sahel-Saharan States; COMESA = Common Market for Eastern and Southern Africa; EAC = East African Community; ECCAS = Economic Community of Central African States; ECOWAS = Economic Community of West African States; IDFA = Indicator of Discrepancy of Fisheries and Aquaculture; IGAD = Intergovernmental Authority on Development; IIFA = Indicator of Inclusion of Fisheries and Aquaculture; IRFA = Indicator of Relevance of Fisheries and Aquaculture; REC = Regional Economic Community; UMA = Arab Maghreb Union; SADC = Southern Africa Development Community.

The analysis of extent of relevance, inclusion, integration and discrepancy indicated that there are noticeable gaps in relation to such integration and much remains to be done in Africa. It is recommended that all RECs be encouraged to improve the extent to which they include and integrate fisheries and aquaculture in policy documents geared towards holistic development and the fight against poverty and food insecurity. By developing a culture of inclusion of fisheries and aquaculture-related policies in specific themes such as poverty eradication, foreign currency generation, food security, ecosystem approach and gender mainstreaming, RECs could act as a “sound box” as standard bearers of these improvements to all their Member States.

The holistic and sustainable development of fisheries and aquaculture in Africa warrants that accurate and comprehensive policies are debated, drafted and implemented.

The process by which the policies are generated should be inclusive and participatory, with stakeholders being actively involved. Such policies should take into account the gaps and relations with key sectors, the relevance of the fisheries and aquaculture sector and the levels of inclusion.

The difference between well drafted and implemented fisheries and aquaculture policies, and poorly implemented, or even non-existent policies, is assessable and could result in social and economic losses at the national and regional level. Further actions should be taken to fully understand, appreciate and support the fisheries and aquaculture sector, to the extent where it is deemed relevant enough to be integrated in all policy documents aimed at spurring growth and development in Africa. Nevertheless, a multi-sectored collaborative effort is one “brick” closer towards achieving the desired “wall” of sustainable development in Africa.

7. Main conclusions

As a continent, Africa has changed rapidly in recent decades. Its population grew from around 228 million people in 1950 to 1.2 billion in 2016. Furthermore, the population is forecast to increase by 1.5 billion by 2025 and by 2.1 billion by 2040 (FAO, 2018d).

Although the average yearly growth of the African population is forecast to be 2.4 percent from 2016 to 2025 (the world population growth forecast for this period is 1.0 percent annually), the growth rate between countries varies from the current 0.2 percent in Mauritius to 3.9 percent in the Niger (elaboration of the authors based on FAO, 2018d).

From a purely economic standpoint, it can be noted that the African continent contains a market of slightly over 1 billion inhabitants (or consumers), growing by 30 million inhabitants per year and going through an accelerated process of urbanization and market concentration. Africa's urban population is likely to triple by 2050 (UNECA, 2017).

The dynamic evolution of the population, production, international trade, and consumption of fish and fishery products in Africa demand a set of well envisioned policies. These policies should be designed to suit the local circumstances and context of each African country. They should facilitate the harnessing of potential and utilization of facilities afforded them by the RECs, which should provide an enabling environment for members and design benchmark policies to strengthen the initiatives, coordinate actions between Member States, and achieve economies of scale in the use of resources. Monitoring and evaluation could also help in compliance. The thematic areas of poverty eradication, food security, foreign exchange generation, gender mainstreaming, and the ecosystem approach are important cross-cutting issues and should be included in a meaningful way in national as well as regional policies.

The analysis of integration and discrepancy between the relevance of fisheries and aquaculture and policy documents reveals that much remains to be done in all African countries (Table 14). Although one might be tempted to infer a connection between the relevance of fisheries and aquaculture at the national level and the inclusion of the sector at the policy level, it is not possible to definitively establish such a causal relationship. This is reflected in countries that despite having a relevant sector still achieve poor inclusion in policies and vice versa. Therefore, the findings lead to two extreme scenarios. On the one hand, in countries where the relevance of fisheries and aquaculture is not recognized, then advocacy should be oriented towards raising awareness and enhancing the contribution of fisheries and aquaculture to the themes studied. On the other hand, there are countries with a modest fisheries and aquaculture sector that have nevertheless implemented such policies and scored high levels of inclusion, acknowledging, to a great extent, the potential of the sector. Somewhere in between the two extremes, there is a range of national realities. In policy intervention, the approach to be taken to address gaps should always consider the national realities. To this end, the general starting point, the "one size fits all" policy approach, does not seem to be an adequate path towards boosting the contribution of the fisheries and aquaculture sector in achieving the SDGs in these African countries.

The same strategic remedial approach applies to RECs. They should be encouraged to improve their policies regarding fisheries and aquaculture, with a particular emphasis on the analysed themes (Table 16). Like the EAC, taking comprehensive and solid policy positions in fisheries is a starting point, which should always be accompanied by and spur action and output. Undoubtedly, RECs' position and

expertise can act as a catalyst towards all their Member States in developing fisheries and aquaculture-related policies to ensure poverty eradication, food security, foreign exchange generation, gender mainstreaming and EAF/EAA. Likewise, RECs have a role to play in improving the degree of integration of this promising sector (combined fisheries and aquaculture) into specific policies touching these thematic areas.

Predictably, the thematic concepts of poverty eradication and food security are better included in national policies than in REC policies, as these concepts are well known and have been explored for decades by national authorities.

Gender mainstreaming and the EAF/EAA are relatively new concepts in the fisheries and aquaculture sector and therefore are still not well provided for, included in, or incorporated in national and REC policies involving fisheries and aquaculture. EAF/EAA is vital for securing sustainability in the use of limited resources in relation to the capture sector as well as for fish farming. In addition, a gender balance between men and women in producer communities (fishers or fish farmers) is important for the sound development of the activity. It will also facilitate improvements in income generation and food security across families. Gender mainstreaming also gains ground in terms of food security, since the role of women becomes much more relevant in view of the construction of consumption habits in children at the household level, and the involvement women should have in the design of promotion strategies. Indeed, the thematic areas are also interrelated; where policies cater to some, there may be a “spill-off” of benefits to other areas.

Policies need to be precisely defined in such a way as to provide for the thematic concepts to spur development of fisheries and aquaculture in Africa. This will allow Africa to better seize existing opportunities and prevent waste with misguided investments. The difference between comprehensively solid implemented fisheries and aquaculture policies and poorly implemented ones, or even non-existent policies, is felt in losses on both the national and continental levels (Odijie, 2019).

The upshot is that while there are promising levels of integration of fisheries and aquaculture in policies geared towards development across the five focused thematic areas, generally, there is also room for improvement at the national, and certainly, at the regional level.

8. Recommendations

In Africa, as in many other parts of the world, the sector of fisheries and aquaculture, particularly the latter, is developing rapidly. The rapid development of fisheries and aquaculture takes place in a dynamic context of a continent comprising different countries.

Looking at the past, statistics are possibly the best way to understand the dynamics of this evolution. The role of the policies is to envisage likely development scenarios, establish specific objectives based on the current gaps, needs and existing opportunities and chart a course as to how to achieve them.

Policies have different levels according to their geographical scale. They can be on a continental basis or regional, as in the case of the RECs, which groups countries for specific purposes. They can also be national as well as at the level of provinces and municipalities.

Fisheries and aquaculture represent an important sector for food security and the creation of wealth. This creation of wealth includes the whole distribution chain, from producers to retailers, including wholesalers (with possible refrigerated storage), to transporters and processors. When retail prices are higher than the prices paid to primary producers, most of the wealth created in fisheries and aquaculture resides in the distribution chain, in terms of both employment creation and profit generation.

The grouping of producers in fisher or in fish-farmer communities, whether they are in small villages or in specific districts of big cities, highlights the role that these communities play in preserving and in expanding employment in these fields while also adopting ecosystem approaches and gender mainstreaming.

Fisher and fish-farmer communities can achieve high visibility in some African countries. Because they are one of the key stakeholders, they should have a leading role in facilitating the development of official national and regional policies relevant for this sector, including the development of action plans at the national and REC levels.

Recommendations have been produced based on both the performed assessment and the results of the Second Consultative Meeting on “Improving Policy Development in Aquaculture in Support of Food Security, Nutrition and Poverty Eradication”, held in Kigali, Rwanda, from 10 to 14 June 2019. In particular, during the Consultative Meeting, recommendations were formulated on how to improve the inclusion of fishery and aquaculture into policy documents that deal with poverty eradication, food security and nutrition to direct the mainstreaming of sustainable aquaculture development within wider policy frameworks.

8.1 RECOMMENDATIONS AT THE COUNTRY LEVEL

Fisheries and aquaculture play an important role in food security. In many cases, this relevance is underestimated or ignored (HLPE, 2014). The products from this sector are a direct and indirect source of food for communities. Directly, fisheries and aquaculture complement the diet of rural households as the main source of animal protein in fishing communities. They also contribute indirectly to food security by generating income. The wealth generation is then expanded along the value chain, reaching other stakeholders and populations.

An improvement in the availability of information on the fisheries and aquaculture value chain would contribute towards enhancing the visibility and awareness of this sector's importance. Production, marketing, trade and connected activities should be assessed in order to improve available information on the level of activity, wealth

generation, contribution to national economies, employment, impact on household livelihoods and subsistence activities, among other topics. In addition, market surveys would facilitate the evaluation of potentialities, unfulfilled demands and opportunities for boosting domestic and intraregional trade. Better knowledge of the value chain can also be a key input for the design of adequate measures to assure that the revenues of the fisheries and aquaculture sector translate to an improvement of national livelihoods.

Education and capacity building to raise awareness of the potential socio-economic impact of the development of fish production and trade should be embraced. Awareness-raising could boost the integration of the sector into national policies, thereby attracting funding for development programmes.

Many countries have developed specific policies for fisheries and aquaculture. However, in order to be effective, policies need to be complemented with an efficient fisheries and aquaculture administration, technical support and credit programmes. A higher involvement of fishery and aquaculture officers in the design of national agricultural policies (considering the wide definition of agriculture that is commonly used) could clearly contribute to enhancing the role given to fisheries and aquaculture within policies. An increase in the visibility of the contribution of fisheries and aquaculture to national development goals can also result in more specific policies and actions, and incidentally, the allocation of funding for the promotion of the sector.

All relevant stakeholders, including the private sector and civil society, should be included in the policy development process. In addition, fisher and fish-farming communities should be included as one of the key stakeholders and players in the implementation phase. They not only should be viewed as the target population, but also viewed as providers of valuable information, feedback and knowledge to national officers and authorities.

This higher involvement of fishery and aquaculture officers and stakeholders could also allow for working towards a holistic management of water resources, which are scarce in many African countries, as well as strengthening the foundation for the implementation of management measures of the ecosystems.

8.2 RECOMMENDATIONS AT THE REC LEVEL

The policies developed by SADC, EAC and ECCAS, regarding poverty alleviation, food security, foreign exchange generation, the ecosystem approach and gender mainstreaming in the fisheries and aquaculture sector, could represent as a useful guide to COMESA, ECOWAS, CENSAD, IGAD and UMA, where no special policies in these respects were identified. However, based on the performed assessment, all the RECs could improve the inclusion of fisheries and aquaculture into the policies that deal with the five thematic areas.

If the RECs become a platform for the exchange of experiences and lessons learned among their Member States, this means positive experiences in one specific country can be disseminated to other countries where they can be replicated or adapted to their own context. Regional forums and round tables might then allow Member States to engage in knowledge sharing and discussions about their implemented policies. This could contribute to improving awareness of the status of fisheries and aquaculture in Member States, understanding the challenges and opportunities for sector development, and designing the lines of action for guiding the work of RECs. The planning of activities at the REC level should be wide enough to attend to the general Member States' needs, but must also have the requisite flexibility to adapt to national realities, as well as being a channel to collate, coordinate and transmit lessons learned to Members. An adequate coordination of activities at a regional level will clearly result in economies of scale in terms of the use of resources and funding, since many outputs could attend to the shared needs of more than one country.

Where the development of domestic markets is recommended at national levels,

RECs are the appropriate bodies to promote regional trade among their members. The creation of special working groups on fisheries and aquaculture in the RECs may represent a way to facilitate dialogue on fisheries and aquaculture, generate and share information, promote regional trade, and reinforce negotiation strength of Member States. Bargaining and market powers are strengthened when countries are grouped, as in the RECs. Topics to be discussed and dealt within the framework of the RECs could include, for instance, tariff and non-tariff trade barriers in Africa, sanitary and phytosanitary requirements, management of transboundary resources (water resources and fish stocks), requirements for investment, conditions in domestic economies for foreign investors, and funding procurement with donors.

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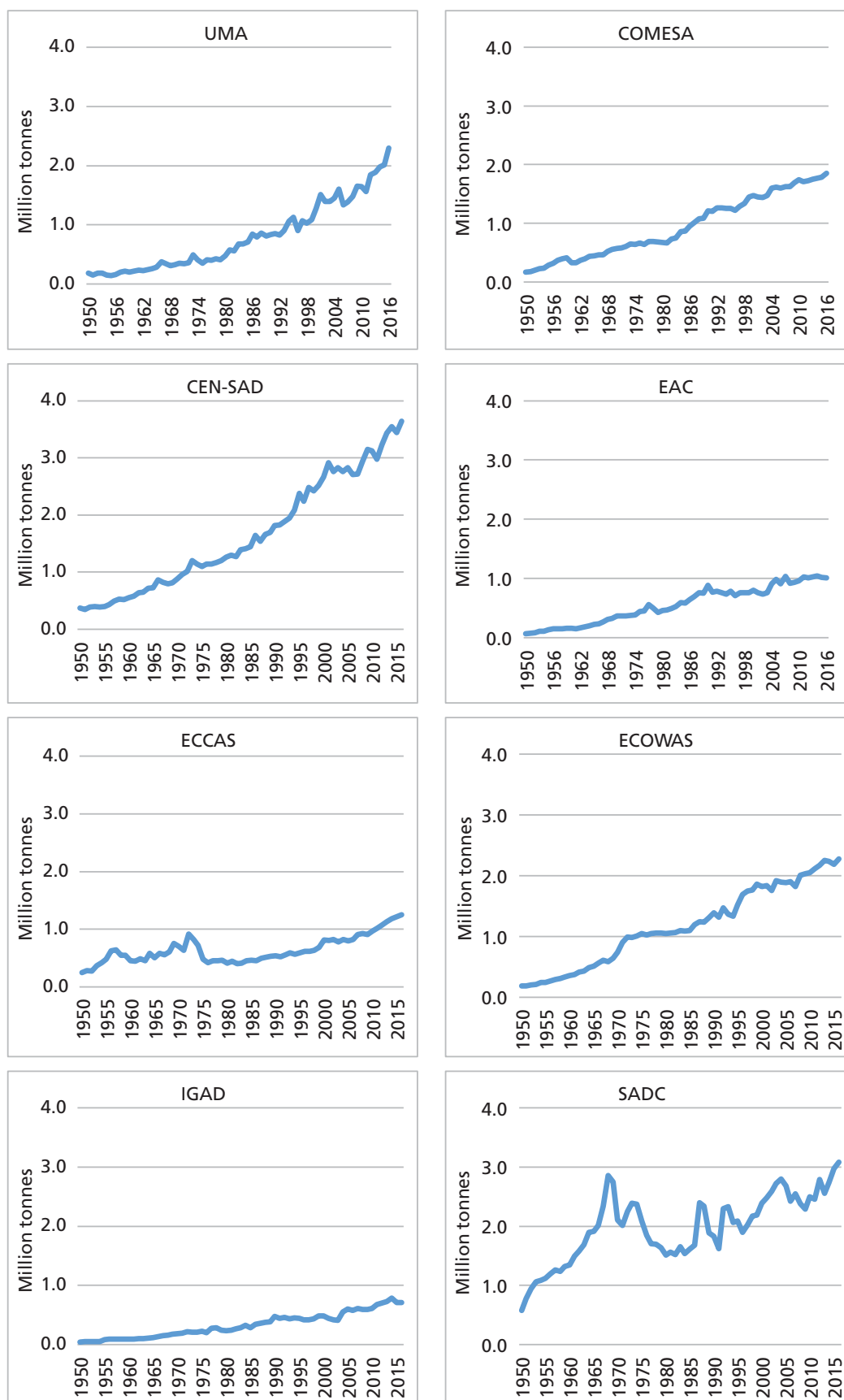
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Annex 1

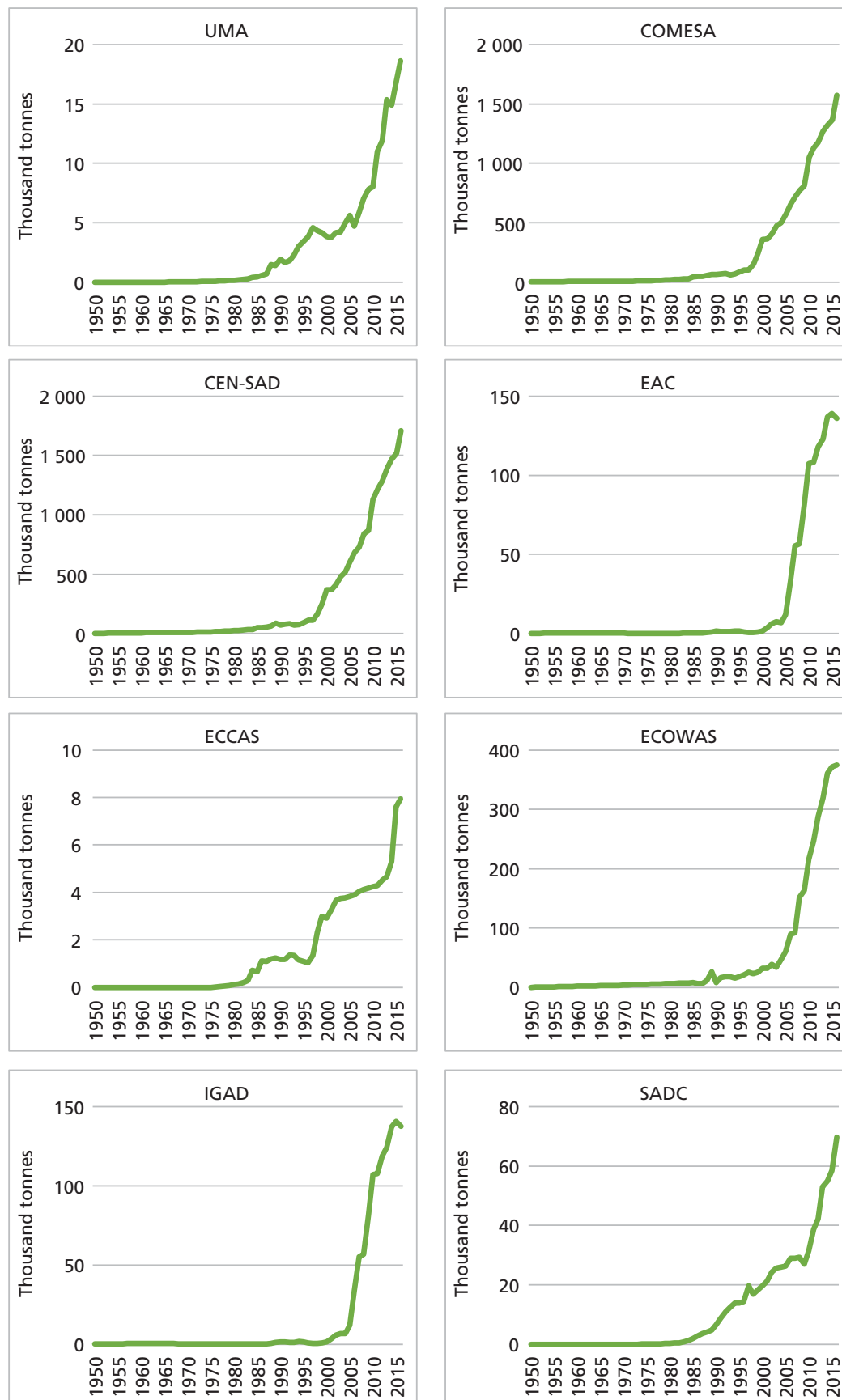
Trend of capture fisheries production in Africa by REC: 1950–2016



Source: Elaboration of the authors based on FAO (2018e).

Annex 2

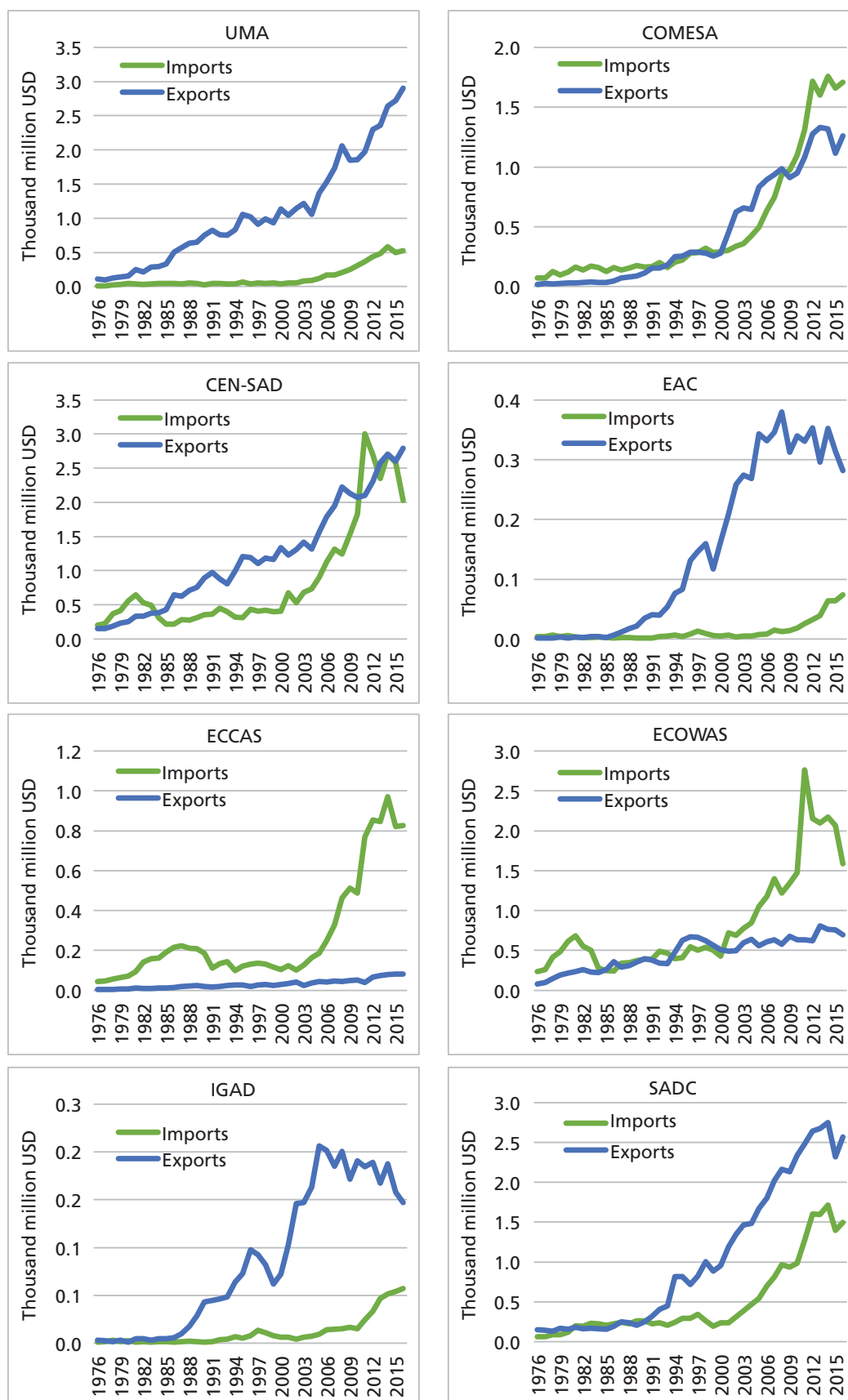
Trend of aquaculture production in Africa by REC: 1950–2016



Source: Elaboration of the authors based on FAO (2018e).

Annex 3

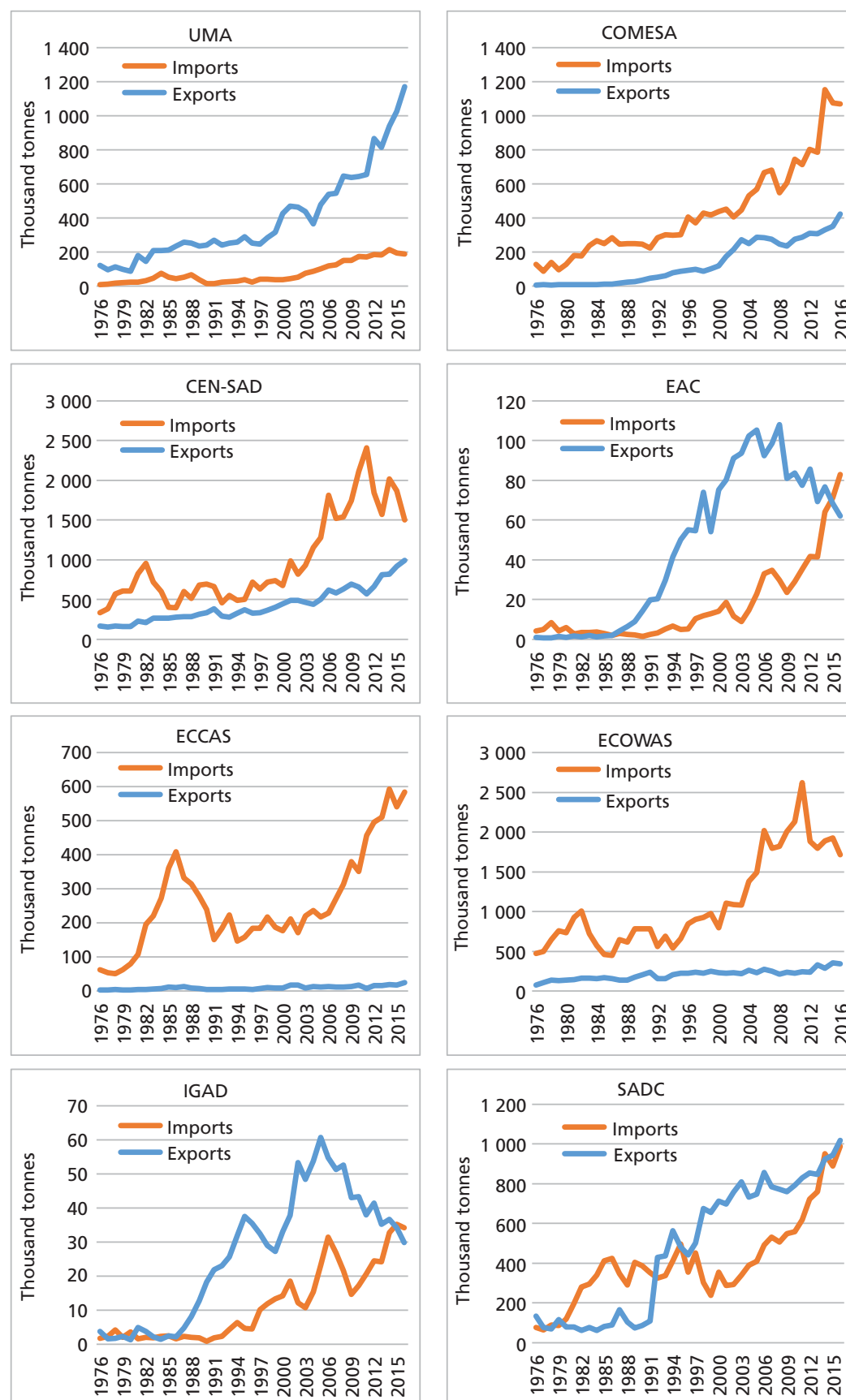
Trend of trade of fish and fisheries products in Africa by REC: value, 1976–2016



Source: Elaboration of the authors based on FAO (2018c).

Annex 4




















































































Trend of trade of fish and fisheries products in Africa by REC: volume, 1976–2016



Source: Elaboration of the authors based on FAO (2018c).

Annex 5

Scoring calculations for the assessment of the relevance of fisheries and aquaculture at the country level

Country	FC* (kg/per capita/ year)	FC _{SCORE}		Fish/Animal protein* (%)	FS _{SCORE}		FE ⁺ (%)	FE _{SCORE}		IRFA
Algeria	4.0	1		4.8	1		1.4	1		3
Angola	18.6	4		25.8	3		68.0	4		11
Benin	13.3	3		25.3	3		0.1	1		7
Botswana	4.1	1		4.2	1		0.3	1		3
Burkina Faso	6.9	2		20.1	3		0.1	1		6
Burundi	2.0	1		28.1	4		0.6	1		6
Cabo Verde	11.9	3		12.0	2		97.9	4		9
Cameroon	15.4	4		36.4	4		0.2	1		9
Central African Republic	7.8	2		13.4	2		0.0	1		5
Chad	9.5	2		35.8	4		0.1	1		7
Comoros	15.4	4		39.8	4		0.0	1		9
Congo	26.5	4		36.7	4		4.6	1		9
Democratic Republic of the Congo	5.3	2		37.5	4		1.7	1		7
Côte d'Ivoire	16.1	4		34.7	4		2.0	1		9
Djibouti	3.8	1		7.2	1		0.2	1		3
Egypt	22.1	4		24.0	3		0.5	1		8
Equatorial Guinea	24.6	4		35.7	4		3.2	1		9
Eritrea	0.6	1		2.8	1		11.6	3		5
Eswatini	2.6	1		3.5	1		0.0	1		3
Ethiopia	0.4	1		1.6	1		0.0	1		3
Gabon	35.6	4		23.7	3		4.8	1		8
Gambia	24.1	4		49.0	4		8.6	2		10
Ghana	26.3	4		50.0	4		2.7	1		9
Guinea	10.2	3		29.7	4		6.9	2		9
Guinea-Bissau	1.4	1		4.4	1		1.7	1		3
Kenya	4.1	1		7.3	1		1.2	1		3
Lesotho	1.3	1		2.8	1		2.9	1		3
Liberia	4.1	1		13.8	2		0.3	1		4

























Annex 5 (Continued)

Country	FC* (kg/per capita/ year)	FC _{SCORE}		Fish/Animal protein* (%)	FS _{SCORE}		FE† (%)	FE _{SCORE}		IRFA
Libya	22.6	4	◆	18.3	2	◆	37.5	4	◆	10
Madagascar	4.2	1	◆	12.5	2	◆	26.7	4	◆	7
Malawi	7.3	2	◆	28.0	4	◆	0.0	1	◆	7
Mali	7.7	2	◆	8.5	1	◆	0.0	1	◆	4
Mauritania	8.1	2	◆	7.4	1	◆	93.8	4	◆	7
Mauritius	23.6	4	◆	18.7	3	◆	53.9	4	◆	11
Morocco	18.1	4	◆	22.2	3	◆	42.4	4	◆	11
Mozambique	10.1	3	◆	42.0	4	◆	5.7	2	◆	9
Namibia	12.1	3	◆	18.0	2	◆	56.7	4	◆	9
Niger	2.7	1	◆	5.4	1	◆	1.1	1	◆	3
Nigeria	13.3	3	◆	38.6	4	◆	17.7	4	◆	11
Rwanda	4.5	1	◆	25.1	3	◆	0.5	1	◆	5
Sao Tome and Principe	30.4	4	◆	53.3	4	◆	0.0	1	◆	9
Senegal	23.9	4	◆	42.5	4	◆	31.3	4	◆	12
Seychelles	56.6	4	◆	49.7	4	◆	99.2	4	◆	12
Sierra Leone	32.3	4	◆	64.4	4	◆	29.3	4	◆	12
Somalia	3.1	1	◆	3.2	1	◆	0.3	1	◆	3
South Africa	6.3	2	◆	5.0	1	◆	5.2	1	◆	4
South Sudan	3.3	1	◆	...	0	◆	...	0	◆	1
Sudan	1.1	1	◆	1.1	1	◆	0.1	1	◆	3
United Republic of Tanzania	7.2	2	◆	22.5	3	◆	8.8	2	◆	7
Togo	11.0	3	◆	36.1	4	◆	0.7	1	◆	8
Tunisia	13.6	3	◆	13.8	2	◆	10.0	2	◆	7
Uganda	12.5	3	◆	30.1	4	◆	8.6	2	◆	9
Zambia	10.0	2	◆	27.8	4	◆	0.1	1	◆	7
Zimbabwe	3.2	1	◆	8.1	1	◆	0.7	1	◆	3
Africa	10.1			18.4			10.9			

Source: *FAO, 2017b; †FAO, 2018c; 2018b. Note: The data refer to 2013.

Annex 6

Scoring calculations for the assessment of the relevance of fisheries and aquaculture at the REC level

REC	FC* (kg/per capita/year)	FC _{SCORE}		Fish/animal protein* (%)	FC _{SCORE}		FE† (%)	FE _{SCORE}		IRFA
CEN-SAD	11.4	3		20.4	3		9.0	2		8
COMESA	10.6	3		19.5	3		12.8	3		9
EAC	6.1	2		22.6	3		4.0	1		6
ECCAS	17.6	4		32.6	4		8.3	2		10
ECOWAS	13.7	3		29.0	4		13.4	3		10
IGAD	3.6	1		7.6	1		3.1	1		3
SADC	11.5	3		20.4	3		22.0	4		10
UMA	13.3	3		13.3	2		37.0	4		9
Africa	10.1			18.4			10.9			

Source: *FAO, 2017b; †FAO, 2018c; 2018b. Note: The data refer to 2013.

Annex 7

Performance matrix of the inclusion of fisheries and aquaculture at the country level

Country	POV _{SCORE}		FEGS _{SCORE}		FOOD _{SCORE}		SUST _{SCORE}		GEN _{SCORE}		IIFA	
Algeria	1		1		1		0		0		3	
Angola	1		1		1		1		1		5	
Benin	1		1		2		0		0		4	
Botswana	0		0		0		0		0		0	
Burkina Faso	1		1		1		1		1		5	
Burundi	1		1		3		1		0		6	
Cabo Verde	1		1		2		0		0		4	
Cameroon	1		0		1		0		0		2	
Central African Republic	1		0		1		0		2		4	
Chad	1		1		0		1		2		5	
Comoros	2		2		3		0		1		8	
Congo	0		0		0		0		0		0	
Côte d'Ivoire	2		2		3		1		1		9	
Democratic Republic of the Congo	1		0		2		0		2		5	
Djibouti	2		2		3		1		2		10	
Egypt	0		0		0		0		0		0	
Equatorial Guinea	1		1		0		0		0		2	
Eritrea	2		2		4		0		0		8	
Eswatini	3		0		3		2		1		9	
Ethiopia	0		0		2		1		1		4	
Gabon	2		2		2		0		2		8	
Gambia	1		2		1		0		4		8	
Ghana	1		0		2		1		2		6	
Guinea	1		1		0		0		0		2	
Guinea-Bissau	0		0		0		1		0		1	
Kenya	1		1		1		2		1		6	
Lesotho	0		0		0		0		0		0	
Liberia	2		0		1		1		1		5	
Libya	0		0		0		0		0		0	
Madagascar	1		2		1		1		0		5	
Malawi	1		1		2		0		3		7	
Mali	1		0		1		0		0		2	
Mauritania	1		1		2		0		0		4	

















































Annex 7 (Continued)

Country	POV _{SCORE}		FEGS _{SCORE}		FOOD _{SCORE}		SUST _{SCORE}		GEN _{SCORE}		IIFA	
Mauritius	1		1		3		0		0		5	
Morocco	3		2		3		3		1		12	
Mozambique	1		2		2		1		0		6	
Namibia	1		1		1		1		1		5	
Niger	1		0		0		0		0		1	
Nigeria	1		0		1		0		0		2	
Rwanda	1		0		1		0		2		4	
Sao Tome and Principe	1		0		2		0		0		3	
Senegal	2		2		2		2		2		10	
Seychelles	1		1		1		1		1		5	
Sierra Leone	1		1		1		0		1		4	
Somalia	1		1		1		1		0		4	
South Africa	3		3		3		3		4		16	
South Sudan	1		0		3		1		0		5	
Sudan	1		0		3		0		0		4	
Togo	1		0		1		0		0		2	
Tunisia	0		0		0		0		0		0	
Uganda	3		3		2		2		3		13	
United Republic of Tanzania	2		1		2		1		1		7	
Zambia	2		1		2		1		2		8	
Zimbabwe	0		1		1		0		0		2	

Source: Elaboration of the authors based on the scoring methodology proposed in Table 2 and Table 4 and ranking proposed in Table 3 and Table 5.

Annex 8

Performance matrix of the inclusion of fisheries and aquaculture at the REC level

REC	POV _{SCORE}		FECS _{SCORE}		FOOD _{SCORE}		SUST _{SCORE}		GEN _{SCORE}		IIFA	
SADC	1		1		2		0		1		5	
EAC	1		1		1		1		0		4	
ECCAS	1		1		1		0		0		3	
IGAD	0		0		1		0		0		1	
CEN-SAD	0		0		0		0		0		0	
COMESA	0		0		0		0		0		0	
ECOWAS	0		0		0		0		0		0	
UMA	0		0		0		0		0		0	

Source: Elaboration of the authors based on the scoring methodology proposed in Table 2 and Table 4 and ranking proposed in Table 3 and Table 5.

Annex 9

List of countries and membership in RECs included in the analysis of the policy documents

Country	UMA	COMESA	CEN-SAD	EAC	ECCAS	ECOWAS	IGAD	SADC
Algeria	UMA							
Angola					ECCAS			SADC
Benin			CEN-SAD			ECOWAS		
Botswana								SADC
Burkina Faso			CEN-SAD			ECOWAS		
Burundi		COMESA		EAC	ECCAS			
Cabo Verde						ECOWAS		
Cameroon					ECCAS			
Central African Republic			CEN-SAD		ECCAS			
Chad			CEN-SAD		ECCAS			
Comoros		COMESA						
Congo					ECCAS			
Côte d'Ivoire						ECOWAS		
Democratic Republic of the Congo		COMESA			ECCAS			SADC
Djibouti		COMESA	CEN-SAD				IGAD	
Egypt		COMESA	CEN-SAD					
Equatorial Guinea					ECCAS			
Eritrea		COMESA	CEN-SAD				IGAD	
Eswatini		COMESA						SADC
Ethiopia		COMESA					IGAD	
Gabon					ECCAS			
Gambia			CEN-SAD			ECOWAS		
Ghana						ECOWAS		
Guinea						ECOWAS		
Guinea-Bissau						ECOWAS		
Kenya		COMESA		EAC			IGAD	
Lesotho								SADC
Liberia						ECOWAS		
Libya	UMA	COMESA	CEN-SAD					
Madagascar		COMESA						SADC
Malawi		COMESA						SADC
Mali			CEN-SAD			ECOWAS		
Mauritania	UMA							
Mauritius		COMESA						SADC
Morocco	UMA		CEN-SAD					
Mozambique								SADC
Namibia								SADC
Niger			CEN-SAD			ECOWAS		
Nigeria			CEN-SAD			ECOWAS		
Rwanda		COMESA		EAC				
Sao Tome and Principe					ECCAS			

Annex 9 (Continued)

Country	UMA	COMESA	CEN-SAD	EAC	ECCAS	ECOWAS	IGAD	SADC
Senegal			CEN-SAD			ECOWAS		
Seychelles		COMESA						SADC
Sierra Leone						ECOWAS		
Somalia			CEN-SAD				IGAD	
South Africa								SADC
South Sudan							IGAD	
Sudan		COMESA	CEN-SAD				IGAD	
Togo			CEN-SAD			ECOWAS		
Tunisia	UMA		CEN-SAD					
Uganda		COMESA		EAC			IGAD	
United Republic of Tanzania				EAC				SADC
Zambia		COMESA						SADC
Zimbabwe		COMESA						SADC

Annex 10

List of reviewed policy documents

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Annex 11

References to fisheries and aquaculture in Poverty Reduction Strategy Papers (PRSP) and FAO Country Programming Framework (CPF)

Country		PRSP		CPF	
		Document	Reference to F&A	Document	Reference to F&A
1	Algeria	X		✓	✓
2	Angola	X		✓	✓
3	Benin	✓	✓	✓	✓
4	Botswana	X		X	
5	Burkina Faso	✓	✓	X	
6	Burundi	✓	✓	✓	✓
7	Cameroon	X		✓	✓
8	Cape Verde	X		✓	✓
9	Central Africa Republic	X		✓	X
10	Chad	✓	✓	X	
11	Comoros	✓	✓	X	
12	Côte d'Ivoire	✓	✓	X	
13	Democratic Republic of the Congo	X		X	
14	Djibouti	✓	✓	✓	✓
15	Egypt	X		✓	✓
16	Equatorial Guinea	X		X	
17	Eritrea	X		X	
18	Ethiopia	✓	X	✓	✓
19	Gabon	X		X	
20	Gambia	X		✓	✓
21	Ghana	X		X	
22	Guinea	X		X	
23	Guinea-Bissau	X		X	
24	Kenya	✓	✓	✓	✓
25	Lesotho	X		✓	✓
26	Liberia	X		✓	✓
27	Libya	X		X	
28	Madagascar	X		X	
29	Malawi	✓	✓	X	
30	Mali	X		X	
31	Mauritania	X		✓	✓
32	Mauritius	X		X	
33	Mozambique	✓	✓	✓	✓
34	Namibia	X		X	
35	Niger	X		X	
36	Nigeria	X		✓	X
37	Congo	X		X	
38	Rwanda	X		X	
39	São Tomé e Príncipe	X		X	

Annex 11 (Continued)

Country		PRSP		CPF	
		Document	Reference to F&A	Document	Reference to F&A
40	Senegal	X		X	
41	Seychelles	X		X	
42	Sierra Leone	X		✓	✓
43	Somalia	X		✓	✓
44	South Africa	X		X	
45	South Sudan	X		X	
46	Sudan	X		✓	✓
47	Eswatini	✓	X	X	
48	Tanzania	✓	X	X	
49	Togo	X		✓	✓
50	Tunisia	X		✓	X
51	Uganda	✓	✓	X	
52	Zambia	X		X	
53	Zimbabwe	X		✓	✓
Total		14	11	23	20

Notes: ✓ = yes; X = no.

The documents' search has been performed in 2016 and refers to PRSPs and CPFs listed in Annex 10.

Annex 12

Discrepancy between fisheries and aquaculture relevance and policy documents at the country level by theme

Table A12.1 shows the scores for the Poverty Eradication-Based Indicator of Discrepancy of Fisheries and Aquaculture (IDFA_{POV}) is calculated by subtracting the scores for IRFA to POV_{SCORE}, as shown in Equation 10.

TABLE A12.1

Discrepancy for the “poverty eradication” theme at the country level

Country	IRFA	POV _{SCORE}	IDFA _{POV}
Algeria	3	1	2
Angola	11	1	10
Benin	7	1	6
Botswana	3	0	3
Burkina Faso	6	1	5
Burundi	6	1	5
Cabo Verde	9	1	8
Cameroon	9	1	8
Central African Republic	5	1	4
Chad	7	1	6
Comoros	9	2	7
Congo	9	0	9
Côte d'Ivoire	9	2	7
Democratic Republic of the Congo	7	1	6
Djibouti	3	2	1
Egypt	8	0	8
Equatorial Guinea	9	1	8
Eritrea	5	2	3
Eswatini	3	3	0
Ethiopia	3	0	3
Gabon	8	2	6
Gambia	10	1	9
Ghana	9	1	8
Guinea	9	1	8
Guinea-Bissau	3	0	3
Kenya	3	1	2
Lesotho	3	0	3
Liberia	4	2	2
Libya	10	0	10
Madagascar	7	1	6
Malawi	7	1	6
Mali	4	1	3
Mauritania	7	1	6
Mauritius	11	1	10
Morocco	11	3	8

TABLE A12.1 (Continued)

Country	IRFA	POV _{SCORE}	IDFA _{POV}
Mozambique	9	1	8
Namibia	9	1	8
Niger	3	1	2
Nigeria	11	1	10
Rwanda	5	1	4
Sao Tome and Principe	9	1	8
Senegal	12	2	10
Seychelles	12	1	11
Sierra Leone	12	1	11
Somalia	3	1	2
South Africa	4	3	1
South Sudan	1	1	0
Sudan	3	1	2
Togo	8	1	7
Tunisia	7	0	7
Uganda	9	3	6
United Republic of Tanzania	7	2	5
Zambia	7	2	5
Zimbabwe	3	0	3

Source: Authors' elaboration on based on the scoring methodology proposed in Table 2 and Table 4 and ranking proposed in Table 3 and Table 5.

Table A12.2 shows the scores for the Foreign Currency Generation-Based Indicator of Discrepancy of Fisheries and Aquaculture (IDFA_{FEG}) is calculated by subtracting the scores for IRFA to FEG_{SCORE}, as shown in Equation 11.

TABLE A12.2
Discrepancy for the “foreign exchange generation” theme at the country level

Country	IRFA	FEG _{SCORE}	IDFA _{FEG}
Algeria	3	1	2
Angola	11	1	10
Benin	7	1	6
Botswana	3	0	3
Burkina Faso	6	1	5
Burundi	6	1	5
Cabo Verde	9	1	8
Cameroon	9	0	9
Central African Republic	5	0	5
Chad	7	1	6
Comoros	9	2	7
Congo	9	0	9
Côte d'Ivoire	9	2	7
Democratic Republic of the Congo	7	0	7
Djibouti	3	2	1
Egypt	8	0	8
Equatorial Guinea	9	1	8

TABLE A12.2 (Continued)

Country	IRFA	FEG _{SCORE}	IDFA _{FEG}
Eritrea	5	2	3
Eswatini	3	0	3
Ethiopia	3	0	3
Gabon	8	2	6
Gambia	10	2	8
Ghana	9	0	9
Guinea	9	1	8
Guinea-Bissau	3	0	3
Kenya	3	1	2
Lesotho	3	0	3
Liberia	4	0	4
Libya	10	0	10
Madagascar	7	2	5
Malawi	7	1	6
Mali	4	0	4
Mauritania	7	1	6
Mauritius	11	1	10
Morocco	11	2	9
Mozambique	9	2	7
Namibia	9	1	8
Niger	3	0	3
Nigeria	11	0	11
Rwanda	5	0	5
Sao Tome and Principe	9	0	9
Senegal	12	2	10
Seychelles	12	1	11
Sierra Leone	12	1	11
Somalia	3	1	2
South Africa	4	3	1
South Sudan	1	0	1
Sudan	3	0	3
Togo	8	0	8
Tunisia	7	0	7
Uganda	9	3	6
United Republic of Tanzania	7	1	6
Zambia	7	1	6
Zimbabwe	3	1	2

Source: Elaboration of the authors based on the scoring methodology proposed in Table 2 and Table 4 and ranking proposed in Table 3 and Table 5.

Table A12.3 shows the scores for the Food Security-Based Indicator of Discrepancy of Fisheries and Aquaculture (IDFA_{FOOD}) is calculated by subtracting the scores for IRFA to FOOD_{SCORE} as shown in Equation 12.

TABLE A12.3
Discrepancy for the 'food security' theme at country level

Country	IRFA	FOOD _{SCORE}	IDFA _{FOOD}
Algeria	3	1	2
Angola	11	1	10
Benin	7	2	5
Botswana	3	0	3
Burkina Faso	6	1	5
Burundi	6	3	3
Cabo Verde	9	2	7
Cameroon	9	1	8
Central African Republic	5	1	4
Chad	7	0	7
Comoros	9	3	6
Congo	9	0	9
Côte d'Ivoire	9	3	6
Democratic Republic of the Congo	7	2	5
Djibouti	3	3	0
Egypt	8	0	8
Equatorial Guinea	9	0	9
Eritrea	5	4	1
Eswatini	3	3	0
Ethiopia	3	2	1
Gabon	8	2	6
Gambia	10	1	9
Ghana	9	2	7
Guinea	9	0	9
Guinea-Bissau	3	0	3
Kenya	3	1	2
Lesotho	3	0	3
Liberia	4	1	3
Libya	10	0	10
Madagascar	7	1	6
Malawi	7	2	5
Mali	4	1	3
Mauritania	7	2	5
Mauritius	11	3	8
Morocco	11	3	8
Mozambique	9	2	7
Namibia	9	1	8
Niger	3	0	3
Nigeria	11	1	10
Rwanda	5	1	4
Sao Tome and Principe	9	2	7
Senegal	12	2	10
Seychelles	12	1	11
Sierra Leone	12	1	11
Somalia	3	1	2
South Africa	4	3	1

TABLE A12.3 (Continued)

Country	IRFA	FOOD _{SCORE}	IDFA _{FOOD}
South Sudan	1	3	-2
Sudan	3	3	0
Togo	8	1	7
Tunisia	7	0	7
Uganda	9	2	7
United Republic of Tanzania	7	2	5
Zambia	7	2	5
Zimbabwe	3	1	2

Source: Elaboration of the authors based on the scoring methodology proposed in Table 2 and Table 4 and ranking proposed in Table 3 and Table 5.

Table A12.4 shows the scores for the Sustainable ecosystem-Based Indicator of Discrepancy of Fisheries and Aquaculture (IDFA_{SUST}) is calculated by subtracting the scores for IRFA to SUST_{SCORE}, as shown in Equation 13.

TABLE A12.4

Discrepancy for the “ecosystem approach” theme at the country level

Country	IRFA	SUST _{SCORE}	IDFA _{SUST}
Algeria	3	0	3
Angola	11	1	10
Benin	7	0	7
Botswana	3	0	3
Burkina Faso	6	1	5
Burundi	6	1	5
Cabo Verde	9	0	9
Cameroon	9	0	9
Central African Republic	5	0	5
Chad	7	1	6
Comoros	9	0	9
Congo	9	0	9
Côte d'Ivoire	9	1	8
Democratic Republic of the Congo	7	0	7
Djibouti	3	1	2
Egypt	8	0	8
Equatorial Guinea	9	0	9
Eritrea	5	0	5
Eswatini	3	2	1
Ethiopia	3	1	2
Gabon	8	0	8
Gambia	10	0	10
Ghana	9	1	8
Guinea	9	0	9
Guinea-Bissau	3	1	2
Kenya	3	2	1
Lesotho	3	0	3

TABLE A12.4 (Continued)

Country	IRFA	SUST _{SCORE}	IDFA _{SUST}
Liberia	4	1	3
Libya	10	0	10
Madagascar	7	1	6
Malawi	7	0	7
Mali	4	0	4
Mauritania	7	0	7
Mauritius	11	0	11
Morocco	11	3	8
Mozambique	9	1	8
Namibia	9	1	8
Niger	3	0	3
Nigeria	11	0	11
Rwanda	5	0	5
Sao Tome and Principe	9	0	9
Senegal	12	2	10
Seychelles	12	1	11
Sierra Leone	12	0	12
Somalia	3	1	2
South Africa	4	3	1
South Sudan	1	1	0
Sudan	3	0	3
Togo	8	0	8
Tunisia	7	0	7
Uganda	9	2	7
United Republic of Tanzania	7	1	6
Zambia	7	1	6
Zimbabwe	3	0	3

Source: Elaboration of the authors based on the scoring methodology proposed in Table 2 and Table 4 and ranking proposed in Table 3 and Table 5.

Table A12.5 shows the scores for the Gender Mainstreaming-Based Indicator of Discrepancy of Fisheries and Aquaculture (IDFA_{GEN}) is calculated by subtracting the scores for IRFA to GEN_{SCORE}, as shown in Equation 14.

TABLE A12.5
Discrepancy for the “gender mainstreaming” theme at the country level

Country	IRFA	GEN _{SCORE}	IDFA _{GEN}
Algeria	3	0	3
Angola	11	1	10
Benin	7	0	7
Botswana	3	0	3
Burkina Faso	6	1	5
Burundi	6	0	6
Cabo Verde	9	0	9
Cameroon	9	0	9
Central African Republic	5	2	3

TABLE A12.5 (Continued)

Country	IRFA	GEN _{SCORE}	IDFA _{GEN}
Chad	7	2	5
Comoros	9	1	8
Congo	9	0	9
Côte d'Ivoire	9	1	8
Democratic Republic of the Congo	7	2	5
Djibouti	3	2	1
Egypt	8	0	8
Equatorial Guinea	9	0	9
Eritrea	5	0	5
Eswatini	3	1	2
Ethiopia	3	1	2
Gabon	8	2	6
Gambia	10	4	6
Ghana	9	2	7
Guinea	9	0	9
Guinea-Bissau	3	0	3
Kenya	3	1	2
Lesotho	3	0	3
Liberia	4	1	3
Libya	10	0	10
Madagascar	7	0	7
Malawi	7	3	4
Mali	4	0	4
Mauritania	7	0	7
Mauritius	11	0	11
Morocco	11	1	10
Mozambique	9	0	9
Namibia	9	1	8
Niger	3	0	3
Nigeria	11	0	11
Rwanda	5	2	3
Sao Tome and Principe	9	0	9
Senegal	12	2	10
Seychelles	12	1	11
Sierra Leone	12	1	11
Somalia	3	0	3
South Africa	4	4	0
South Sudan	1	0	1
Sudan	3	0	3
Togo	8	0	8
Tunisia	7	0	7
Uganda	9	3	6
United Republic of Tanzania	7	1	6
Zambia	7	2	5
Zimbabwe	3	0	3

Source: Elaboration of the authors based on the scoring methodology proposed in Table 2 and Table 4 and ranking proposed in Table 3 and Table 5.

Annex 13

Discrepancy between fisheries and aquaculture relevance and policy documents at the REC level by theme

TABLE A13.1
Discrepancy for the “poverty eradication” theme at REC level

REC	IRFA	POV _{SCORE}	IDFA _{POV}
ECOWAS	10	0	10
ECCAS	10	1	9
SADC	10	1	9
COMESA	9	0	9
UMA	9	0	9
CEN-SAD	8	0	8
EAC	6	1	5
IGAD	3	0	3

TABLE A13.2
Discrepancy for the “ecosystem approach” theme at REC level

REC	IRFA	GEN _{SCORE}	IDFA _{GEN}
ECCAS	10	0	10
ECOWAS	10	0	10
SADC	10	0	10
COMESA	9	0	9
UMA	9	0	9
CEN-SAD	8	0	8
EAC	6	1	5
IGAD	3	0	3

TABLE A13.3
Discrepancy for the “foreign exchange generation” theme at REC level

REC	IRFA	FEG _{SCORE}	IDFA _{FEG}
ECOWAS	10	0	10
ECCAS	10	1	9
SADC	10	1	9
COMESA	9	0	9
UMA	9	0	9
CEN-SAD	8	0	8
EAC	6	1	5
IGAD	3	0	3

TABLE A13.4
Discrepancy for the “gender mainstreaming” theme at REC level

REC	IRFA	GEN _{SCORE}	IDFA _{GEN}
ECCAS	10	0	10
ECOWAS	10	0	10
SADC	10	1	9
COMESA	9	0	9
UMA	9	0	9
CEN-SAD	8	0	8
EAC	6	0	6
IGAD	3	0	3

TABLE A13.5
Discrepancy for the “food security” theme at REC level

REC	IRFA	FOOD _{SCORE}	IDFA _{FOOD}
ECOWAS	10	0	10
ECCAS	10	1	9
COMESA	9	0	9
UMA	9	0	9
SADC	10	2	8
CEN-SAD	8	0	8
EAC	6	1	5
IGAD	3	1	2

Source: Authors’ elaboration on based on the scoring methodology proposed in Table 2 and Table 4 and ranking proposed in Table 3 and Table 5.

Integration of the fisheries and aquaculture sector in policy is becoming fundamental given its contribution to poverty eradication, foreign currency generation, food security and gender mainstreaming. This document provides practical guidance for fisheries and aquaculture policy-makers and those involved at all levels of planning to assist them in the formulation and implementation of policies. It assesses the relevance of the fisheries and aquaculture sector through the selection of the following three indicators: per capita consumption of fish and fishery products, fish share in animal protein, and fishery exports as a percentage of agricultural exports. It provides an overview of existing policy documents and evaluates, through a qualitative analysis, the extent of inclusion, integration and discrepancy of fisheries and aquaculture in policy documents aimed at, *inter alia*, poverty eradication, foreign currency generation, food security, sustainable development and gender mainstreaming. To ensure the quality evaluation per theme, over 300 documents have been reviewed. The study also proposes recommendations based on the performed assessment at the country and regional level to improve the integration of the sector in policy formulation and instruments to support the implementation of policies.

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