

**GAP ANALYSIS OF NATIONAL AND REGIONAL FISHERIES AND  
AQUACULTURE PRIORITIES AND INITIATIVES IN SOUTHERN AND  
EASTERN AFRICA IN RESPECT TO CLIMATE CHANGE AND DISASTERS**



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## **GAP ANALYSIS OF NATIONAL AND REGIONAL FISHERIES AND AQUACULTURE PRIORITIES AND INITIATIVES IN SOUTHERN AND EASTERN AFRICA IN RESPECT TO CLIMATE CHANGE AND DISASTERS**

**Nordenfjeldske Development Services (NFDS)**

Sandy Davies

Sinead Sheridan

Antonia Hjort

Helen Boyer

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## PREPARATION OF THIS DOCUMENT

This Circular and a similar Circular for Western and Central Africa have been undertaken as part of the pan-African NEPAD-FAO Fish Programme (NFFP) Component C (FMM/GLO/003/MUL). The Circular aims to provide a baseline of comparable information on key priorities identified at national and regional levels with regard to fisheries and aquaculture in respect to disaster risk management (DRM) and climate change adaptation (CCA), and vice versa. It also aims to map where actions are in place to implement these priorities and where gaps exist. A total of 24 countries, 16 of which are least developed countries (LDCs), were considered for this study.

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*Gap analysis of national and regional fisheries and aquaculture priorities and initiatives in Southern and Eastern Africa in respect to climate change and disasters.*

FAO Fisheries and Aquaculture Circular No. 1095. Rome, FAO. 100 pp.

### ABSTRACT

Fisheries and fishing-dependent people are particularly vulnerable to disasters and climate change impacts. The objective of the study was to identify regional and national gaps and opportunities to reduce the vulnerability of the sector to impacts from climate change and increase the resilience of fisheries and aquaculture livelihoods to disasters. The identification of gaps and opportunities were made through a combination of a survey, website searches and reviews of documents – including policies, strategies or agreements – that contain fisheries/aquaculture and climate change adaptation (CCA)/disaster risk management (DRM) aspects. Identified national and regional priorities were compared to actions in place and thus gaps were identified. A total of 24 countries, 16 of which are least developed countries (LDCs), were considered for Southern and Eastern Africa. A regional workshop on climate change, disasters and crises in the fisheries and aquaculture sector in Southern and Eastern Africa was held in Maputo, Mozambique on 22–24 April 2013 to provide input into the gap analysis process and provide recommendations for addressing climate change adaptation and disaster risk management in fisheries and aquaculture. Overall, 39 gaps or recommendations were identified. These are presented in Chapter 4, with reference to their source and in respect to the four areas of adaptation and disaster risk management action, namely:

- strengthened governance to address disasters and climate change impacts affecting fisheries and aquaculture;
- addressing and reducing underlying risks through prevention and adaptation measures;
- managing effective response and improving preparedness for disasters and climate change; and
- improved early warning systems and availability of information.

These gaps and recommendations provide specific and general suggestions for those considering supporting the development of actions in the area of fisheries/aquaculture and CCA/DRM in Southern and Eastern Africa. The findings will also be used to inform advice for the on-going CAMFA process and will provide valuable insights for the formulation of the Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa.



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## ACRONYMS AND ABBREVIATIONS

|          |                                                                                                              |
|----------|--------------------------------------------------------------------------------------------------------------|
| AAP      | African Adaptation Programme (UNDP)                                                                          |
| ACCC     | Adaptation Project for West Africa                                                                           |
| ACCCA    | Advancing Capacity to support Climate Change Adaptation (UNITAR)                                             |
| ADF      | African Development Fund (African Development Bank)                                                          |
| ADPC     | Asian Disaster Preparedness Centre                                                                           |
| AfDB     | African Development Bank                                                                                     |
| AGRHYMET | Centre régional de formation et d'application en agrométéorologie et hydrologie opérationnelle               |
| AMCEN    | African Ministerial Conference on Environment                                                                |
| APPECCAO | Adapting fishing policy to climate change in West Africa using scientific knowledge and indigenous knowledge |
| ARD      | agriculture and rural development                                                                            |
| ASCLME   | Agulhas and Somali Current Large Marine Ecosystems                                                           |
| AU       | African Union                                                                                                |
| AUC      | African Union Commission                                                                                     |
| AU-IBAR  | African Union - Interafrican Bureau for Animal Resources                                                     |
| BCLME    | Benguela Current Large Marine Ecosystem                                                                      |
| BCPR     | Bureau for Crisis Prevention and Recovery (UNDP)                                                             |
| BMZ      | Federal Ministry for Economic Cooperation and Development (Germany)                                          |
| CAADP    | Comprehensive Africa Agriculture Development Programme                                                       |
| CAFRS    | Comprehensive African Fisheries Reform                                                                       |
| CAMFA    | Conference of African Ministers for Fisheries and Aquaculture                                                |
| CAR      | Central African Republic                                                                                     |
| CCA      | Climate Change Adaptation                                                                                    |
| CCAA     | Climate Change Adaptation in Africa                                                                          |
| CC-DARE  | Climate Change Adaptation and Development Initiative (UNDP and UNEP)                                         |
| CCLME    | Canary Current Large Marine Ecosystem                                                                        |
| CCRF     | Code of Conduct for Responsible Fisheries                                                                    |
| CDSF     | ClimDev Special Fund                                                                                         |
| CEAO     | Communauté économique de l'Afrique de l'Ouest                                                                |
| CECAF    | Committee for the Eastern Central Atlantic Fishery                                                           |
| CEMAC    | Central African Economic and Monetary Community                                                              |
| CEN-SAD  | Community of Sahel – Saharan States                                                                          |
| CIDA     | Canadian International Development Agency                                                                    |
| CIFAA    | Committee for Inland Fisheries and Aquaculture of Africa                                                     |

|          |                                                                                          |
|----------|------------------------------------------------------------------------------------------|
| CILSS    | Permanent Interstate Committee for Drought Control in the Sahel                          |
| CLIVAR   | Climate Variability and Predictability Project of the World Climate Research Programme   |
| CNSHB    | National Centre for Fisheries Sciences Boussoura and Research Center scientists, Conakry |
| COFI     | Committee on Fisheries (FAO)                                                             |
| COMESA   | Common Market for Eastern and Southern Africa                                            |
| COMIFAC  | Central African Forests Commission                                                       |
| COP      | Conference of the Parties to UNFCCC                                                      |
| COREP    | Regional Fisheries Committee for the Gulf of Guinea                                      |
| CPF      | Country Programme Framework (FAO)                                                        |
| CSCDDR   | Civil Society Coalition on Disaster Risk Reduction (Nigeria)                             |
| DFID     | Department for International Development                                                 |
| DRC      | Democratic Republic of Congo                                                             |
| DRM/R    | disaster risk management/reduction                                                       |
| EAF/A    | Ecosystem approach to fisheries/aquaculture                                              |
| ECCAS    | Economic Community of Central African States                                             |
| ECOWAP   | ECOWAS Agricultural Policy                                                               |
| ECOWAS   | Economic Community of West African States                                                |
| EEZ      | exclusive economic zone                                                                  |
| ENDA- TM | Environment and Development in the Third World                                           |
| ENSO     | El Niño-Southern Oscillation                                                             |
| EU       | European Union (Member Organization)                                                     |
| FAO      | Food and Agriculture Organization of the United Nations                                  |
| FARA     | Forum for Agricultural Research in Africa                                                |
| FCWC     | Fishery Committee of West and Central Gulf of Guinea                                     |
| FI       | Fisheries and Aquaculture Department (FAO)                                               |
| FIBA     | Fondation internationale du Bassin d'Arguin                                              |
| FMM      | FAO Multipartner Mechanism                                                               |
| FP DRR   | Framework Programme on Disaster Risk Reduction                                           |
| GCLME    | Guinea Current Large Marine Ecosystem                                                    |
| GEF      | Global Environmental Facility                                                            |
| GIZ      | Gesellschaft für Internationale Zusammenarbeit (Germany)                                 |
| ICC      | Interdepartmental Coordinating Committee (ECOWAS)                                        |
| ICPAC    | IGAD Prediction and Application Centre                                                   |
| IDA      | International Development Association (World Bank)                                       |
| IDID-ONG | Initiatives pour un développement intègre durable                                        |

|           |                                                                    |
|-----------|--------------------------------------------------------------------|
| IDRC      | International Development Research Centre (Canada)                 |
| IDWG-CC   | Interdepartmental Working Group – Climate Change (FAO)             |
| IFAD      | International Fund for Agricultural Development                    |
| IFR       | International River Foundation                                     |
| IFRCRCS   | International Federation of Red Cross and Red Crescent Societies   |
| IGAD      | Intergovernmental Authority for Development                        |
| INDP      | National Institute of Fisheries Development in (Cape Verde)        |
| IOC       | Indian Ocean Commission                                            |
| IOC       | Intergovernmental Oceanographic Commission (UNESCO)                |
| IPCC      | Intergovernmental Panel on Climate Change                          |
| IPOA      | International Plan of Action                                       |
| IUCN      | International Union for Conservation of Nature                     |
| IUU       | illegal, unreported and unregulated (fishing)                      |
| JICA      | Japan International Cooperation Agency                             |
| LCBC      | Lake Chad Basin Commission                                         |
| LDC       | least developed countries                                          |
| LDCF      | Least Developed Countries Fund (GEF)                               |
| LME       | large marine ecosystem                                             |
| MDG       | Millennium Development Goal                                        |
| MTP       | medium term plan                                                   |
| NAPA      | National Adaptation Programme of Action                            |
| NEPAD     | New Partnership for Africa's Development                           |
| NEST      | Nigeria Environmental Study/action Team                            |
| NFFP      | NEPAD - FAO Fisheries Programme                                    |
| NGO       | Non-governmental organization                                      |
| NIFFR     | National Institute for Freshwater Fisheries Research (Nigeria)     |
| NPCA      | NEPAD Planning and Coordinating Agency                             |
| OIE       | World Organisation for Animal Health                               |
| OMVS      | Senegal River Development Organization                             |
| PaCFA     | Global Partnership on Climate, Fisheries and Aquaculture           |
| PAF       | Partnership for African Fisheries (DFID/NEPAD)                     |
| PIF       | Project Identification Form (GEF)                                  |
| PRCM      | Regional Coastal and Marine Conservation Programme for West Africa |
| PRODEBALT | Programme de développement durable du bassin du lac Tchad          |
| PRS(P)    | Poverty Reduction Strategy (Paper)                                 |

|        |                                                                    |
|--------|--------------------------------------------------------------------|
| RBO    | River Basin Organization                                           |
| REC    | Regional Economic Commission                                       |
| REPAO  | Le Réseau sur les politiques de pêche en Afrique de l'Ouest        |
| RFB/MO | regional fisheries body/management organization                    |
| RLO    | Regional Lake Organization                                         |
| SADC   | Southern African Development Community                             |
| SASKI  | Sustainable Agriculture Systems, Knowledge and Information         |
| SCCF   | Special Climate Change Fund (GEF)                                  |
| SFAA   | FAO FI Strategy for Fisheries and Aquaculture in Africa            |
| SO     | strategic objective                                                |
| SPADA  | Special Programme for Aquaculture Development in Africa            |
| SPFIF  | Strategic Partnership for Sustainable Fisheries Investment Fund    |
| SRFC   | Subregional Fisheries Commission                                   |
| SWIOFC | South West Indian Ocean Fisheries Commission                       |
| SWIOFP | South West Indian Ocean Fisheries Project                          |
| UNCED  | United Nations Conference on Environment and Development           |
| UNDAF  | United Nations Development Assistance Framework                    |
| UNDP   | United Nations Development Programme                               |
| UNECA  | United Nations Economic Commission for Africa                      |
| UNEP   | United Nations Environment Programme                               |
| UNESCO | United Nations Educational, Scientific and Cultural Organization   |
| UNFCCC | United Nations Framework Convention on Climate Change              |
| UNISDR | United Nations International Strategy for Disaster Reduction       |
| UNITAR | United Nations Institute for Training and Research                 |
| UNOCHA | United Nations Office for the Coordination of Humanitarian Affairs |
| USAID  | United States Agency for International Development                 |
| USD    | United States Dollar                                               |
| WCDR   | World Conference on Disaster Reduction                             |
| WFP    | World Food Programme (UN)                                          |
| WHO    | World Health Organization                                          |
| WSSD   | World Summit on Sustainable Development                            |
| WWF    | World Wide Fund for Nature                                         |



## 1 Executive summary

---

African fishers and fish farmers are highly vulnerable to disasters and climate change impacts. This is because they tend to be located in one of the most dynamic and disaster prone environments that exist - at the interface between land and water. Moreover, their often weak social and economic situation leaves them vulnerable to the impacts of disasters and climate change. Fishers and fish farmers are also vulnerable to general disasters of human origin such as oil and chemical spills, changes in food and nutrition security, conflicts, protracted crises, the HIV/AIDS pandemic; and sector-specific hazards and disasters such as transboundary aquatic animal diseases and pest outbreaks. The vulnerability of communities to these events will depend on how resilient they are. This includes their level of exposure, sensitivity to the exposure and their capacity to anticipate, adapt and recover from the effects of the event.

This study and a companion study for Western and Central Africa have been undertaken as part of the pan-African NEPAD-FAO Fish Programme (NFFP<sup>1</sup>) Component C. The study aims to provide a baseline of comparable information on key priorities identified at national and regional levels with regard to fisheries and aquaculture in respect to disaster risk management (DRM) and climate change adaptation (CCA), and vice versa. It also aims to map where actions are in place to implement these priorities and where gaps exist. A total of 24 countries, 16 of which are least developed countries (LDCs), were considered for this study.

In respect to identifying regional gaps, firstly regional and sub-regional frameworks – including policies, strategies or agreements – that contain fisheries/aquaculture and CCA/DRM aspects were identified. Twelve such frameworks exist. Of these,<sup>2</sup> three were focused on fisheries and aquaculture, one on disasters, two on climate change and six more widely on the environment, food security or the broader water sector. The importance of the fisheries and aquaculture sector is noted in 11 of the frameworks in the context of: the importance of aquatic resources to rural communities for livelihood and nutrition when limited alternative options exist; as a contributor to food security; and the importance of protecting marine ecosystem health through effective fisheries management and climate change adaptation. Specific vulnerability to disasters and climate change impacts was identified in only three of the documents and included vulnerability to: increased severity of floods and droughts and unexpected extreme climactic events; degradation of coastal fishery resources; acidification of the oceans as a result of increased carbon dioxide levels; and low-lying coastal areas causing losses in productive coastal habitats. The same three frameworks [East African Community (EAC) Food Security Plan, the Southern African Development Community (SADC) Southern Africa Sub-Regional Framework of Climate Change Programmes and the Agulhas and Somali Current Large Marine Ecosystems (ASCLME) Project Document) identified specific threats to vulnerable groups. Women were noted as vulnerable in the EAC Food Security Plan and coastal communities were highlighted as being threatened in both the SADC and ASCLME frameworks. Adaptation activities are proposed in five of the more recent documents. These include region-wide generic policy level interventions such as: the mainstreaming of climate change and disaster risk management into fisheries and aquaculture and improving synergies between governments

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<sup>1</sup> The New Partnership for Africa's Development (NEPAD) and the United Nations Food and Agriculture Organization's (FAO) joint fisheries and aquaculture programme.

<sup>2</sup> These are the NEPAD Action Plan for the Development of African Fisheries and Aquaculture; the African Union (AU) record of the Conference of African Ministers of Fisheries and Aquaculture (CAMFA); the AU Strategy for Disaster Risk Reduction (DRR); NEPAD Environmental Action Plan; the East African Community (EAC) Food Security Plan; the Indian Ocean Commission (IOC) Framework for Regional Climate Change Adaptation Strategy; Southern African Development Community (SADC) Protocol on Fisheries; SADC Southern African Sub-Regional Framework of Climate Change programmes; Agulhas and Somali Current Large Marine Ecosystems (ASCLME) Project Document; Benguela Current Commission (BCC) Strategic Action Programme; Lake Tanganyika Authority Strategic Action Programme for the Sustainable Management of Lake Tanganyika; and the Lake Victoria Basin Protocol for Sustainable Development.

and national departments. Improving scientific monitoring and research into climate change was also seen as crucial to informing adaptation actions and predicting climate change impacts on food production systems, ecosystems, fishers and relevant communities.

The next step was to identify the gaps between the identified needs and what is being done, or has been done, to address these needs at a regional level. Through a combination of a survey, website searches and reviews of documents, 38 projects were identified that operate at a global, continental or sub-regional level and address these needs; 25 were found to be CCA or DRM projects that are directed specifically at fisheries and aquaculture. The primary common gap – where needs were identified but limited activities were found to address them – was women’s vulnerability with regard to agricultural production (including fisheries and aquaculture production), because women are a significant part of the labour force but lack access to credit, etc. This reduces their ability to increase their communities’ resilience to climate change and disaster impacts and improve nutrition and economic situations. Another opportunity identified with respect to addressing the vulnerability of coastal communities to impacts of climate change and disasters, was the exchange of best practices and lessons learned between targeted sub-regions and non-targeted sub-regions or countries. For example, the GEF-funded BCLME project targeting Angola, Namibia and South Africa, could facilitate such exchanges with other coastal SADC countries and the ASCLME project. In terms of adaptive food production systems and emergency preparedness/prevention (including insurance), some specific support with regard to fisheries and aquaculture may be warranted in order to decrease reliance on food relief. In particular, some targeted support to aquaculture development in this region, so as to increase the resilience of communities to climate change impacts and disasters, could be beneficial.

To identify gaps at country level the following national documents were mapped, using four criteria to find information on relevant priorities: Poverty Reduction Strategy Papers (PRSP), the United Nations Development Action Frameworks (UNDAF), the Comprehensive Africa Agriculture Development Programme (CAADP), the National Adaptation Programmes of Action (NAPAs), the National Communications and the Review of Current and Planned Adaptation Action (2011). Overall, the NAPAs and National Communications (both climate change frameworks) were the most inclusive of fisheries and aquaculture concerns in respect to CCA and DRM, while the least specific were the UNDAFs and national CAADP compacts, which quite often did not mention the sector at all, or only mentioned quite general actions. In total, 112 documents were mapped and specific vulnerabilities and actions identified in many countries. A total of 28 projects or interventions were identified that addressed these priority needs and 22 of them were CCA and DRM projects that directly incorporated fisheries or aquaculture. The main gaps with regard to required support relate to:

- the development/promotion of fish farming, including integrated farming, as a means to increase resilience of communities and individuals to risks in general by diversifying food sources and livelihood options;
- improvement of fish processing practices, including storage capacity and marketing of fish products in order to increase their resilience and overall economic viability;
- monitoring of weather, climate, ocean, lake or ecosystem conditions, including supporting early warning with regard to e.g. floods and droughts;
- sustainable fisheries management to reduce vulnerability to the impacts of climate change and disasters;
- in coastal countries, strengthening integrated coastal zone management, including marine protected areas and mangrove management/conservation;
- strengthening co-management was identified as a national priority in some countries; and
- improving water quality management including erosion, siltation and weed control to assist communities in increasing productivity and overall robustness of their fisheries and water systems.



In addition to the above findings, gaps were identified in the recommendations made by experts and stakeholders in a range of documents and reports. The nature of these recommendations was often more general than country/sub-region-specific and they were organized into four sections: actions to be taken through subregional/regional projects, programmes and/or bodies; country-specific actions; actions with regard to local/national/regional CCA/DRM plans and implementation; and other relevant actions.

A regional workshop on climate change, disasters and crises in the fisheries and aquaculture sector in Southern and Eastern Africa was held in Maputo, Mozambique on 22–24 April 2013 to provide input into the gap analysis process and provide recommendations for addressing CCA and DRM in fisheries and aquaculture. The workshop's recommendations were: that more support be given to mainstreaming CCA and DRM policy into the fisheries and aquaculture sector, and vice versa; to conduct vulnerability assessments on specific fisheries, including socio-economic aspects, and to identify potential adaptation and disaster risk reduction options; that communication between scientists, practitioners and policy makers be strengthened; that greater investments be made in livelihood diversification, for example, through adding value to processed products and supporting the development of integrated aquaculture systems; and that adaptive management be implemented to increase the resilience of the sector.

Overall, 39 gaps or recommendations were identified. These are presented in Chapter 4, with reference to their source and in respect to the four areas of adaptation and disaster risk management action, namely:

- strengthened governance to address disasters and climate change impacts affecting fisheries and aquaculture;
- addressing and reducing underlying risks through prevention and adaptation measures;
- managing effective response and improving preparedness for disasters and climate change; and
- improved early warning systems and availability of information.

These gaps and recommendations provide specific and general suggestions for those considering supporting the development of actions in the area of fisheries/aquaculture and CCA/DRM in Southern and Eastern Africa. The findings will also be used to inform advice for the on-going CAMFA process and will provide valuable insights for the formulation of the Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa.

The final Chapter ranks the gaps/recommendations against criteria specifically relevant to the NFFP. The top scoring actions were:

#### **Strengthened governance to address disasters and climate change impacts affecting fisheries and aquaculture**

- Support opportunities for improved policy coherence and coordination of DRM and CCA initiatives in fisheries and aquaculture at all levels including, for example, the establishment of a working group on climate change and disasters in fisheries and aquaculture within NEPAD; the preparation of joint actions such as policy briefs on climate change, disasters and crises to inform CAMFA; and support to the implementation of the relevant principles relating to disaster and climate change included in the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries (under development).
- Strengthen and enhance gender-based approaches in fisheries management planning and disaster risk management/adaptation.
- Promote the dissemination of gained experiences and lessons learnt in order for them to feed into national, sub-regional and regional policies and strategies through, for example, the organization of best practices exchange workshops, co-prepared and organized with RECs and/or RFBs and the development of guidelines and/or other publications.

### **Addressing and reducing underlying risks through prevention and adaptation measures**

- Support the development/promotion of fish farming, including integrated farming, as a means to increase the resilience of communities and individuals to risks, by diversifying food sources and livelihood options.
- Improve fish processing practices, including storage capacity and marketing of fish products, in order to increase the resilience and overall economic viability of fishers, fishing communities and fish farmers.
- Establish or strengthen community-based DRM, or link with co-management or community development committees trained in risk assessment, management and communication at different levels.
- Promote approaches and practices such as EAF and EAA, which contribute to reducing the exposure and vulnerability of communities by developing and implementing management plans that take into account CCA and DRM, needs and support implementation.
- Support local, national and regional policy linkages and two-way communication for the development and implementation of DRM and CCA plans in a participatory and integrated manner through pilot activities in selected fishing/fish farming communities and countries.
- Support the implementation of priority actions where fisheries and aquaculture are mentioned in the NAPAs of LDCs by supporting the development of project identification forms (PIFs) and project documents.

### **Improved early warning systems and availability of information**

- Monitoring of weather, climate, ocean, lake or ecosystem conditions, including supporting early warning of floods and droughts.
- Establish early warning systems at local, national and international levels and training for fishers in safe fishing and navigation practices. Establish a framework for safety at sea, including making safety equipment available on national and local markets.
- Strengthen communication between scientists, practitioners and policy makers so as to increase the robustness of the governance system and better respond to change.
- Build scientific knowledge of the effects and impacts of climate change. This will assist in building resilience and taking action against extreme weather events and disasters.

### **Managing effective response and improving preparedness for disasters and climate change**

- Community awareness through, and participation in, risk reduction programmes.
- Improve collaboration between fisheries administrations and national DRM institutes. Provide better DRM support in disaster-prone areas, better information flow at all levels and across sectors and capacity building and involvement of fishing communities in national contingency planning.

## 2 Introduction and background

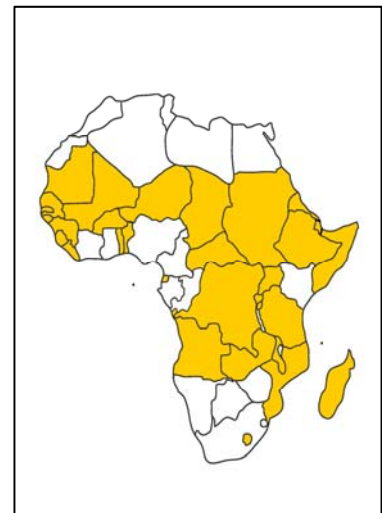
In 2010, a total of 385 natural disasters killed around 300 000 people worldwide and affected more than 217 million others<sup>3</sup>. Over 90 percent of the people affected by weather and climate related disasters are from developing countries. The 33 least developed countries (LDC, Figure 1) in Africa, make the continent very vulnerable to disasters. When disaster hits, it is the poor who suffer the most, especially those who are dependent on agriculture and fisheries. This is because fishers and fish farmers live at the interface of land and water, a zone of constant change and high impact for hydrological disasters, and their generally weak social and economic situation leaves them more exposed to the impacts of disaster. Climate change and disasters have different impacts on men and women, with the latter often constituting the more vulnerable group.

The types of disasters that affect fishers and fish farmers include natural disasters such as storms, cyclones or hurricanes – with associated flooding and tidal surges – tsunamis, earthquakes, droughts, floods and landslides. The frequency and intensity of these extreme weather events are expected to increase as a result of climate change and the projected gradual global warming; this will result in an increase in the development challenges that many fishing communities face. The fisheries and aquaculture sector is also vulnerable to human induced disasters such as oil and chemical spills, nuclear or radiological material losses, changes in food and nutrition security, conflicts, protracted crises and health pandemics. Sector-specific hazards and disasters also exist, such as transboundary aquatic animal diseases and pest outbreaks that can have significant impacts on aquaculture production and fisheries.

In addition to loss of human life, the effects of disasters and climate change on the sector can include the direct loss of livelihood assets such as boats, gear, cages, aquaculture ponds, fish and brood stock, postharvest and processing facilities and landing sites<sup>4</sup>. The indirect impacts can also be extensive and include damage to infrastructure required for accessing markets, an increase in waterborne diseases such as cholera and the migration of people as a result of, for example, changes in the availability of fish and adequate nutrition or shortages of freshwater.

The vulnerability of fishing and fish farming communities to the changes and hazards will depend on their degree of exposure, ability to withstand the exposure and their capacity to anticipate, adapt and recover from the effects of the hazard. In order for individuals and communities to suffer less and cope better, adaptation to the effects of climate change and a reduction in vulnerability to disasters is essential. Achieving this requires long-term, well-structured, integrated and efficient response activities that link with other development processes globally, regionally and nationally.

The next section describes international and regional frameworks and initiatives that are underway to strengthen resilience to the impacts of disasters and climate change within the fisheries and aquaculture communities of Africa. This report – and the accompanying report for Western and Central Africa – provide a comprehensive gap and stakeholder analysis of national and regional fisheries and aquaculture priorities and initiatives in respect to climate change and disasters, with the goal of presenting a baseline of information to facilitate improved planning of activities and interventions.



**Figure 1: Least developed countries of Africa**

<sup>3</sup> Guha-Sapir, D., Vos, F., Below, R. & Ponserre, S. 2011. Annual disaster statistical review 2010: the numbers and trends. Brussels, Belgium. Centre for Research on the Epidemiology of Disasters (CRED), 42 pp.

<sup>4</sup> FAO, 2012. *Improved preparedness for and effective response to disasters in fisheries and aquaculture*. The state of world fisheries and aquaculture, available at [www.fao.org/docrep/016/i2727e/i2727e.pdf](http://www.fao.org/docrep/016/i2727e/i2727e.pdf)

### Box 1: Key definitions

**Resilience** is “the ability to prevent disasters and crises as well as to anticipate, absorb, accommodate or recover and adapt from them in a timely, efficient and sustainable manner. This includes protecting, restoring and improving food and agricultural systems under threats that impact agriculture, food and nutrition security, and food safety (and related public health).” (FAO’s definition)

**Climate change adaptation (CCA)** refers to adjustments in ecological, social or economic systems in response to actual or expected climate stimuli and their effects or impacts. This term refers to changes in processes, practices and structures to moderate or offset potential damages or to take advantage of opportunities associated with changes in climate. It involves adjustments to reduce the vulnerability of communities, regions and activities to climate change and variability. Adaptation is important in the climate change issue in two ways: one relating to the assessment of impacts and vulnerabilities; and the other to the development and evaluation of response options.

**Disaster** is a serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources.

**Disaster risk reduction (DRR)** is the concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.

**Disaster risk management (DRM)** goes beyond preparedness, prevention and mitigation, which form the core of DRR, to incorporate emergency response, recovery and rehabilitation within a management framework.

**Shocks, crisis and other risks:** the main shocks and related risks include natural disasters (e.g. geo-climatic and climate variability including extreme weather events originating from natural hazards - droughts, floods, storms, extreme temperatures, hailstorms-fires, landslides, volcanic eruptions, tsunamis, earthquakes, etc.); food chain emergencies of transboundary or technological threats [e.g. transboundary plant, forest, animal, aquatic and zoonotic pests and diseases (with high impact), food safety events, radiological and nuclear emergencies, dam failures, industrial pollution, oil spills, etc.]; socio-economic crises (e.g. the global food price crises and financial shocks); violent conflicts (e.g. civil unrest, regime change, interstate conflicts, civil wars, etc.); and protracted crises (i.e. complex, prolonged emergencies that combine two or more aspects of the above-mentioned shocks).

*UNISDR. 2009. Global assessment report on disaster risk reduction. United Nations Office for Disaster Risk Reduction (UNISDR). ISBN/ISSN: 9789211320282. 207 pp.*

Available at [www.unisdr.org/we/inform/publications/9413](http://www.unisdr.org/we/inform/publications/9413)

## 2.1 The global response to climate change and disasters

There are good reasons for Africa to integrate and link its response to climate change adaptation (CCA) and to disaster risk management (DRM) within the global context. These include the need to reduce fragmentation of development efforts in line with the Paris Declaration on Aid Effectiveness<sup>5</sup>; to contribute to, and benefit from, global monitoring and coordination initiatives<sup>6</sup>; to benefit from lesson learning and exchange; and to be able to access global support funds. In the following paragraphs, a

<sup>5</sup> The Paris Declaration, endorsed on 2 March 2005, is an international agreement that seeks to harmonize, align and manage aid to achieve results; it has a set of monitorable actions and indicators.

<sup>6</sup> Such as the call for integration of all available information on how the seas and oceans are being used by the Group of Experts in relation to the UN Regular Process for Global Reporting and Assessment of the State of the Marine Environment (UNEP & IOC-UNESCO, 2009).

brief overview of the global response to climate change and disasters, generally and in respect to fisheries and aquaculture, is provided.

Broad principles for the effective and responsible management of the fisheries and aquaculture sectors are contained in the FAO Code of Conduct for Responsible Fisheries (the Code). Many of the principles relate to an ecosystem approach to fisheries (EAF) and aquaculture (EAA). An EAF or EAA are, in effect, a means of implementing many of the provisions of the Code and provide a way to achieve sustainable fisheries development. EAF/EAA offer a holistic approach to fisheries/aquaculture management and include the biotic, abiotic and human components of ecosystems in which fisheries operate. They also promote the implementation of adaptive and precautionary approaches to management. The global EAF-Nansen programme works with the Large Marine Ecosystem (LME) projects and programmes and assists countries and regions to practically implement these approaches and strengthen the management of fisheries and aquaculture sectors.

Following the recommendation of the 29th Session of the FAO Committee on Fisheries (COFI), FAO engaged in a participatory process to support the development of the Voluntary Guidelines for Securing Sustainable Small-scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines).<sup>7</sup> The process engaged more than 4 000 representatives of small-scale fishing communities, governments, regional organizations, civil society and academia and the Guidelines – which are under development – provide complementary guidance with respect to small-scale fisheries in support of the overall principles and provisions of the Code. Chapter 10 deals with vulnerabilities of small-scale fishing communities in the context of disaster risks and climate change, with a focus on empowerment within a human rights-based approach. It offers a useful framework for reducing vulnerability and increasing the resilience of small-scale fishing communities.

The Rio+20 Conference (June 2012) marked 20 years since the United Nations Conference on Environment and Development (UNCED) and ten years since the World Summit on Sustainable Development (WSSD). It was an important conference, with world leaders, governments, the private sector, NGOs and other groups, working towards a shared vision for the sustainable development of the planet. The result – “The future we want”<sup>8</sup> – recognizes the role of fisheries and aquaculture in sustainable development and the necessity to promote sustainable fisheries and aquaculture in a manner that improves food security while enhancing resilience to climate change and natural disasters. It draws attention to disaster risk reduction (DRR) and the building of resilience in the context of sustainable development and poverty eradication, and stresses the need to integrate DRR and resilience into wider development plans – a message that is being repeated in many forums. It highlights the need to ensure access to fisheries and the importance of access to markets, by subsistence, small-scale and artisanal fishers and women fish workers, as well as indigenous peoples and their communities, particularly in developing countries. It also specifically notes the vulnerability of Small Island Developing States (SIDS).

The global response to climate change has been led by the United Nations Framework Convention on Climate Change (UNFCCC) of 1992 which acknowledged that climate change was inevitable, that efforts were required to slow global warming and that preparing for the impacts of climate change was also essential. The Special Climate Change Fund (SCCF) was established in 2001 to finance long-term planned response strategies, policies and measures relating to CCA, technology transfer and capacity building. In 2002, the Least Developed Countries Fund (LDCF) was established especially to assist LDCs in preparing and implementing their National Adaptation Programmes of Action (NAPAs). These are tools specifically developed for LDCs to analyse their vulnerability to climate change and identify specific measures to reduce these vulnerabilities.

<sup>7</sup> FAO April 2014: [www.fao.org/fishery/ssf/guidelines/en](http://www.fao.org/fishery/ssf/guidelines/en)

<sup>8</sup> [https://rio20.un.org/sites/rio20.un.org/files/a-conf.216l-1\\_english.pdf.pdf](https://rio20.un.org/sites/rio20.un.org/files/a-conf.216l-1_english.pdf.pdf)

The United Nations International Strategy for Disaster Reduction (UNISDR) of 1999, serves as the United Nations' focal point for the coordination of DRR and DRR activities. The Hyogo Framework for Action<sup>9</sup> was adopted by the World Conference on Disaster Reduction (held in Hyogo, Japan, in 2005) and aims to build disaster resilient communities and countries within the remit of coordinated and integrated sustainable development. It integrates DRR into sustainable development policies and planning, developing and strengthening institutions, mechanisms and capacities to build resilience to hazards, and incorporating risk reduction approaches into emergency preparedness, response, and recovery programmes.

The World Organization for Animal Health<sup>10</sup> (OIE) is the intergovernmental organization responsible for improving animal health worldwide. In recent years, its role in respect to global surveillance, monitoring and rapid response mechanisms to infectious animal diseases – including those transmissible to humans – has increased. The organization also works closely with FAO and the World Health Organization (WHO) in times of animal and public health emergencies, which are often linked to disasters and the spread of disease. For fisheries, transboundary aquatic animal diseases and pest outbreaks can be critical and require careful monitoring.

FAO is undergoing a transformation process, with a new ten-year Strategic Framework due to be implemented in January 2014. Through one of its five Strategic Objectives, the Organization will help to increase the resilience of livelihoods to threats and crises<sup>11</sup>. Proposals for implementation include priorities within Africa, especially areas suffering from on-going crises such as the Sahel and the Horn of Africa region. Within the fisheries and fish farming sector, FAO has supported a programme of consultation at global and regional<sup>12</sup> levels where the synergies between managing climate change and DRR were explored.<sup>13</sup> The need for integration was further endorsed by the 29<sup>th</sup> Session of the Committee on Fisheries (COFI) in 2011.

## 2.2 The African context

African efforts to improve sustainable development within the agriculture sector, and specifically fisheries and aquaculture and the sectors of DRM and CCA have increased over the last few decades and are continuously being strengthened. However, as noted in the global process and at the 29th Session of COFI, the integration of these efforts is often lacking. For example, the flagship programme of the African agricultural sector is the Comprehensive Africa Agriculture Development Programme (CAADP) of the New Partnership for Africa's Development (NEPAD). It aims to eliminate hunger and reduce poverty through agricultural growth, increasing public investment in agriculture to a minimum of ten percent of national budgets in order to increase agricultural productivity – including fisheries – by at least 6 percent. However, the integration of fisheries and aquaculture into the CAADP process was very slow until the formation of the Conference of African Ministers for Fisheries and Aquaculture (CAMFA) under

<sup>9</sup> [www.unisdr.org/we/coordinate/hfa](http://www.unisdr.org/we/coordinate/hfa)

<sup>10</sup> [www.oie.int/](http://www.oie.int/)

<sup>11</sup> This strategic objective encompasses four organizational outcomes: legal, policy, institutional systems and regulatory frameworks are enhanced for disaster and crisis risk management for agriculture, nutrition, food security and food safety; known and emerging food, nutrition and agriculture threats are identified, forecast, analysed, monitored and used to trigger appropriate decisions and actions; capacities are strengthened for prevention, as well as for impact mitigation, to reduce the probability and severity of disasters and crises that threaten food and agriculture systems; and disasters and crises affecting agriculture and food systems are effectively and accountably managed, including preparedness, robust responses and effective post-crisis transitions.

<sup>12</sup> For example the draft Background Paper for Outcome 3 'Programme in Support to the Implementation of the FAO Fisheries and Aquaculture Strategy in Africa (GCP/RAF/463/MUL) – SIDA AFRICA Programme. Hard rains and strong tides: a review of African region fishery sector initiatives and programmes on climate change and disaster risk management,' FAO 2011, or 'Reduced vulnerability of fishing and fish farming communities to natural disasters in Africa' FAO 2010 ([www.fao.org/docrep/014/i2083b/i2083b00.pdf](http://www.fao.org/docrep/014/i2083b/i2083b00.pdf)).

the auspices of the African Union (AU) in 2010. In that year, the Conference requested member states, Regional Economic Communities (RECs) and Regional Fisheries Bodies (RFBs) to mainstream climate change in fisheries policies, development and management programmes. In response to this, and in light of the gap in NEPAD's Partnership for African Fisheries (PAF) in respect to climate change and disasters, NEPAD and the FAO developed the joint NEPAD-FAO Fish Programme (NFFP) with a specific component that aims to assist in incorporating CCA and DRM into fisheries governance. This component, known as Component C, focuses on the need to develop and integrate DRM and CCA plans into fisheries and aquaculture strategies, and vice versa, at local, national and regional levels.

The flagship programme and primary mechanism of DRR in Africa is the extended programme of action for the implementation of the Africa Regional Strategy for DRR (2006–2015),<sup>14</sup> under the collaborative efforts of the Commission of the African Union, the UNISDR, the World Bank and the African Development Bank, amongst others. This programme of action has the goal of substantially reducing the social, economic and environmental impacts of disasters on African people and economies, thereby facilitating the achievement of the MDGs and other development aims in Africa. The objectives include mainstreaming DRM and CCA into sustainable development, strengthening capacity, developing and maintaining policies and sustainable coordination mechanisms at regional and subregional and national levels, and mobilising resources. Priority programme components are based on major identifiable gaps in political commitment, public awareness and capacity development and are jointly implemented by AU member states, RECs, the NEPAD Planning and Coordination Agency (NCPA), UN Agencies, development partners, civil society organizations and other relevant institutions, including the Africa Working Group on DRR.

Important milestones in the African DRR process have been the second African Ministerial Conference on DRR organized by the AUC with the support of the UNISDR and the Government of Kenya, held in Nairobi, Kenya, in April 2010; and the 4th Africa Regional Platform for DRR, held in Arusha, United Republic of Tanzania, in February 2013, also facilitated by UNISDR. The functions of the Regional Platform are: to be the primary regional mechanism to support the implementation of DRR strategies and programmes at regional, subregional and national levels; to monitor their progress and to facilitate coordination and information-sharing between governments, subregional organizations and UN agencies. The platform is supported by the RECs that provide strategic guidance to countries; facilitate subregional strategies and programmes; coordinate inter-state initiatives; establish subregional DRR platforms and focal points; and mobilize resources for national and subregional efforts. At the national and local levels, multi-stakeholder national platforms or committees exist, including DRR-related ministries, civil society organizations, media, private sector, scientific and educational institutions, that contribute skills and knowledge to the process of mainstreaming DRR and CCA into multi-sectoral development planning and implementation.

From an environmental perspective, the NEPAD Environmental Action Plan (2003) tackles both the sustainable development of Africa's fisheries and adaptation to climate change, but neither theme is incorporated into the other in the Action Plan. NEPAD is also implementing a Climate Change and Natural Resource Management Programme that aims to play a coordinating and advocacy role, in order to promote regional and national programmes that counteract the environmental threats related to climate change. The programme brings together relevant regional and continental players to coordinate, share knowledge and encourage one another in addressing the threat of climate change. Its objective is to assist countries in integrating climate change responses into their national development processes. In NEPAD's "Strategic Direction 2010 to 2013", attention is given to the cross-cutting issues of capacity building, gender and the environment, with environmental action plans being seen as key to strengthening the ability of member states to integrate climate change responses into national development processes and provide capacity building and technical support.

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<sup>14</sup> [www.unisdr.org/we/inform/publications/19613](http://www.unisdr.org/we/inform/publications/19613)

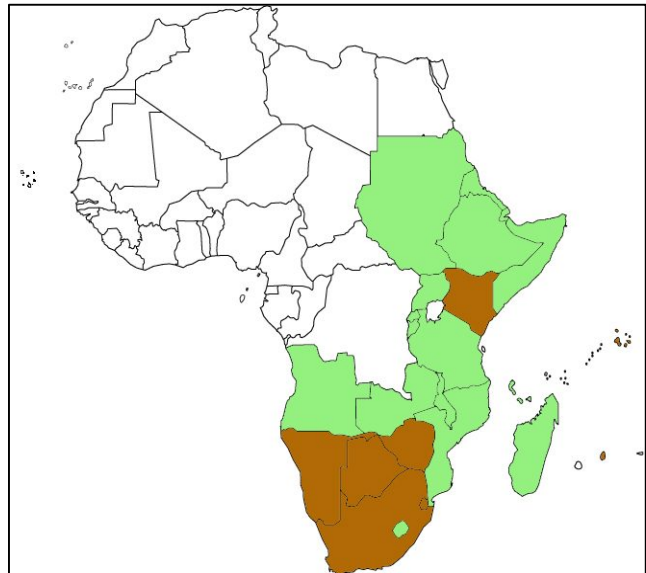
In response to the limited knowledge of frameworks, interventions and players in the areas of potential overlap between African fisheries and aquaculture and CCA and DRM, the need for a comprehensive gap and stakeholder analysis was identified in the development of the NFFP. This resulted in two studies being undertaken, one presented in this report and the other in a companion report on Western and Central Africa.

## 2.3 The gap analysis process

### 2.3.1 Defining the countries for consideration

The purpose of the study was to provide a baseline of comparable information on key priorities identified at national and regional levels with regard to fisheries and aquaculture in CCA and DRM, and vice versa, in Southern and Eastern Africa and to map where actions have or are taking place to implement these priorities, and where gaps exist.

A total of 24 countries were selected to cover the Southern and Eastern African region – 16 of these are Least Developed Countries (LDCs), namely Angola, Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Lesotho, Madagascar, Malawi, Mozambique, Rwanda, Somalia, Sudan (including South Sudan), Tanzania, Uganda and Zambia. The other countries are not LDCs: Botswana, Kenya, Mauritius, Namibia, Seychelles, South Africa, Swaziland and Zimbabwe. Ten of the 24 are landlocked, including Botswana, Burundi, Ethiopia, Lesotho, Malawi, Rwanda, Swaziland, Uganda, Zambia and Zimbabwe (Figure 2).



**Figure 2: The 24 countries of the study  
(green = LDC and brown = not LDC)**

### 2.3.2 Mapping of regional priorities

These countries are all members of regional or subregional integration bodies with different mandates, such as a focus on economic, fishery or ecosystem issues, but which have policies, strategies and frameworks covering a range of areas. These inter-governmental bodies facilitate the negotiation of African, regional or subregional instruments and they often also coordinate projects or programmes to support the implementation of these frameworks at the national level. To map the regional priorities in respect to fisheries and aquaculture and CCA and DRM as defined through the policies, strategies and frameworks of these organizations, the following steps were taken:

- The first step was to identify the relevant bodies under the categories of (i) African Regional Economic Communities (RECs); (ii) shared water bodies (including Large Marine Ecosystems (LMEs), river basin organizations (RBOs) and lake basin organizations); and (iii) Regional Fisheries Bodies (RFBs). These organizations were then contacted and their websites searched in order to identify policies, strategies and frameworks that are relevant for either fisheries and aquaculture or CCA and DRM (Annex 7.1)<sup>15</sup>.

<sup>15</sup> The study was undertaken in late 2012 and early 2013, therefore documents made public after this date have not been included.



- The second step was to review these to assess whether (i) the fisheries and aquaculture sector is identified as a priority sector within the document; (ii) if specific vulnerabilities to climate change and disasters have been identified; (iii) if vulnerable groups and in particular women have been identified; and (iv) if specific actions have been proposed to address the vulnerabilities (Annex 7.4 and Chapter 2).

### 2.3.3 Mapping of national priorities

Six documents were identified and used to assess whether the fisheries and aquaculture sector is identified as a priority sector for a country, if specific vulnerabilities to climate change and disasters have been identified, if vulnerable groups and in particular women have been identified, and if specific actions have been proposed to address the vulnerabilities. They were selected to provide comparable and available information about national development planning in general, in relation to the United Nations, the African Union and the NEPAD; and in respect to CCA and DRM. The six documents were:

- Poverty Reduction Strategy Papers (PRSP) are broad national planning tools, required from countries seeking debt relief and development assistance, in order to demonstrate an inclusive and comprehensive process of national development planning that will contribute to the achievement of the Millennium Development Goals (MDGs).
- The United Nations Development Action Frameworks (UNDAF) provide an overview of the actions, strategies and roles of the different UN agencies in response to the national development priorities.
- The Comprehensive Africa Agriculture Development Programme (CAADP)<sup>16</sup> country compacts are signed agreements setting out the country situation and identifying priorities for investments within the framework of achieving the first MDG: to eliminate hunger and extreme poverty through growth in the agricultural sector.
- The National Adaptation Plans of Action (NAPAs)<sup>17</sup> are a tool specifically for LDCs to analyse their vulnerability to climate change and to identify specific measures to reduce these vulnerabilities.
- The National Communications<sup>18</sup> are country level reports on progress with implementation of the Conference of the Parties to the UNFCCC (COP) process on climate change and they are required by all non-LDCs and may be submitted by LDCs.
- The Review of Current and Planned Adaptation Action (2011)<sup>19</sup> was undertaken to provide a baseline understanding of who is doing what in the area of adaptation to disasters and climate change. The review summarizes country level priority interests and adaptation needs, government efforts to support adaptation through policy and planning, the level of international support for adaptation efforts, and notes potential gaps in adaptation efforts at country and regional levels.

Each document was searched for relevant words such as fish; aquaculture; mariculture; ocean; sea; coast; river; lake; marine; flood; tsunamis; cyclone; gender; and women in the context of vulnerabilities, issues and/or priorities in relation to fisheries and aquaculture. The results found were recorded in the first stage mapping tables, ensuring that adequate information was recorded to understand the problem

<sup>16</sup> [www.nepad-caadp.net/](http://www.nepad-caadp.net/)

<sup>17</sup> [http://unfccc.int/national\\_reports/napa/items/2719.php](http://unfccc.int/national_reports/napa/items/2719.php)

<sup>18</sup> [http://unfccc.int/national\\_reports/non-annex\\_i\\_natcom/items/2716.php](http://unfccc.int/national_reports/non-annex_i_natcom/items/2716.php)

<sup>19</sup> Preventionweb: [www.preventionweb.net/english/hyogo/national/list/?pid:23&pih:2](http://www.preventionweb.net/english/hyogo/national/list/?pid:23&pih:2)

or priority. Relevant activities and projects, including partners and duration, were also recorded. This information was compiled for each of the 24 countries prior to being analysed by different criteria to provide summary tables of the identified priorities (Annex 7.3 and Chapter 4).

### 2.3.4 Mapping of national and regional interventions and actions

In order to assess if actions have, are or are planned to take place to improve the resilience of individuals and communities to climate change impacts and disasters, a mapping of past, existing and emerging initiatives and programmes on CCA and DRM in relation to fisheries and aquaculture was undertaken. Three different searches were undertaken to gain information and detail about the intervention, including the main focus, the key activities, the players and the timelines:

- **Survey** – an extensive list of stakeholders was established from documents, web searches, workshop reports and personal contacts (Annex 7.4). A survey questionnaire was designed (Annex 6.6) and widely distributed to this list in French and English. Follow-up by email and telephone was undertaken when further information was required.
- **Document review** – information was extracted from documents and reports (Annex 7.6).
- **Website search** – country and organization websites were searched. The search included RECs, RFBs, shared water body organizations, donors and agencies.

The information was compiled into two tables – one for national initiatives and one for regional initiatives (Annexes 7.7 and 7.8) – and analysed (Chapters 3 and 4).

### 2.3.5 Review of expert and stakeholder opinion

In addition to reviewing documents and reports to determine the interventions that have taken place or are taking place (see list of documents in Annex 7.6), these documents, where relevant, were also reviewed to extract expert and stakeholder recommendations<sup>20</sup> in respect to gaps and required interventions in the areas of fisheries and aquaculture and CCA and DRM. The findings are compiled in Chapter 5.3.

### 2.3.6 Regional consultative workshops

The analysis produced from the steps above was presented and discussed with key stakeholders in a regional workshop in Maputo, Mozambique from 22 to 24 April 2013<sup>21</sup>. The workshop covered climate change, disasters and crises in the fisheries and aquaculture sector in Southern and Eastern Africa and was attended by 77 participants representing 17 countries and 11 organizations. The participants were provided with copies of the analysis and the initial findings prior the workshop and were able to provide comments and updates during the workshop. In addition, the overall recommendations of the workshop are summarized in Chapter 5 and incorporated into the prioritization of activities process that is presented in Chapter 6.

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<sup>20</sup> Sources include: FAO. 2011. Report of the African Regional Consultative Meeting on Securing Sustainable Small-Scale Fisheries: Bringing together Responsible Fisheries and Social Development, Maputo, Mozambique, October 2010. FAO fisheries and Aquaculture Report/FAO, No 963. Rome, FAO. 68pp.; Campbell, J. 2010. Reduced vulnerability of fishing and fish farming communities to natural disasters in Africa, 26pp.; Muir, J. Hard rains and strong tides: a review of African region fishery sector initiatives and programmes on climate change and disaster risk management, Background Paper for Outcome 3 of NFFP (GCP/RAF/463/MUL) –SIDA AFRICA Programme.; and meetings with NEPAD and FAO experts, 2012.

<sup>21</sup> FAO. 2013. Report of the FAO/NEPAD workshop on climate change, disasters and crises in the fisheries and aquaculture sector in Africa.

### **2.3.7 Gap analysis and prioritization**

Subsequent to the steps detailed above, gaps and recommendations were identified from three sources. Firstly, the priorities identified in the regional and national frameworks were compared with the implementation actions in place to address these; secondly a literature review was used to identify gaps highlighted by experts and stakeholders; and thirdly gaps and recommendations were drawn from the regional workshop (Chapter 5). These were then organized by focus area, providing a summary of the overall gaps and recommendations for use by a range of stakeholders. Chapter 6 takes the findings of the gap analysis and then relates these specifically to criteria for the fulfilment of NEPAD/FAO priorities in relation to NFFP Component C.

### **2.3.8 Limitations on methodology**

For practical limitations, the national fisheries and aquaculture policies were not reviewed to assess whether CCA and DRM were incorporated and prioritized. Such an exercise would, however, be a useful addition to the database of information that has been compiled (note, only summaries are included in this report) and extend the overall scope and value of the study. It is also noted that the choice of the “Review of Current and Planned Adaptation Action” (2011) as the main source for mapping DRM priorities at the national level proved to be less broad than expected. Consideration was given to mapping the Hyogo framework progress reports 2009 to 2011 and the National Report in preparation for WCDR (2004) but because these documents were only available for less than half of the countries and the information contained in the reports was of limited value to this study, they were not included. Finally, it is noted that the majority of the so-called “regional strategies and policies” mapped and discussed in Chapter 3.1 and Annex 7.1 were, strictly speaking, action plans or programmes rather than more general expressions of priorities.

### 3 Overview of regional level prioritization and implementation

Following the process described in 2.3.2, relevant bodies under the categories of pan-African, Regional Economic Communities, shared water bodies and Regional Fisheries Bodies were identified and policies, strategies and frameworks relevant for either fisheries and aquaculture, or CCA and DRM, were identified (Annex 7.1). The purpose of this was to identify priorities that have been set for CCA and DRM within fisheries and aquaculture policy, strategy and frameworks, or vice versa. In summary:

- Four pan-African frameworks were identified, all of which have been formulated in the last ten years, two under the auspices of the AU and two under NEPAD. Two are focused on fisheries and aquaculture (the record of African Ministers at CAMFA and an action plan for fisheries and aquaculture), one is for disaster reduction (the AU strategy for DRR) and one is environmental (the NEPAD Environmental Action Plan).
- The three regional economic communities of this sub-region (the full list can be read at Annex 7.1.2) all had different frameworks that were relevant. These were a Plan for Food Security for the East African Community (EAC), a Strategy for CCA for the Indian Ocean Commission (IOC), a Framework for Climate Change and a Protocol on Fisheries for the Southern African Development Community (SADC).
- For shared water bodies, two LME associated frameworks were identified: the Agulhas and Somali Currents LME (ASCLME) Project Document and the Benguela Current Commission (BCC) Strategic Action Programme (SAP). Four lake bodies were identified, two with no relevant frameworks [the Lake Malawi Basin Commission (LMBC) and the Lake Victoria Fisheries Organization (LVFO)], one with a SAP [the Lake Tanganyika Authority (LTA)], and one with a Protocol for Sustainable Development [Lake Victoria Basin Commission (LVBC)]. Two river basin commissions were identified – for the Zambezi and the Okavango – but neither had relevant regional frameworks.
- Five Regional Fisheries Bodies are relevant to this region and each has a convention text or similar as a framework document. These were assessed but not considered to be relevant because they relate to the functions of the intergovernmental body rather than to policy or strategy for sector development.

In all, 12 frameworks were considered in the assessment of priorities. Of these, three focused on fisheries and aquaculture, one on disasters, two on climate change, and six focused broadly on the environment, food security or the wider water sector. Of the 12, five were plans, two each were strategies and protocols, and one each was a record, framework or document.

#### 3.1 Overview of trends in African, regional and subregional policies, strategies and frameworks

The second step was to review these frameworks to assess (i) if the fisheries and aquaculture sector is identified as a priority sector within the document; (ii) if specific vulnerabilities to climate change and disasters have been identified in the fisheries and aquaculture sectors; (iii) if vulnerable groups and in particular women have been identified for these sectors; and (iv) if specific actions have been proposed to address the vulnerabilities, again in the fisheries and aquaculture sectors. The assessment is not intended to be a comparison, but to provide an overview of the level of consideration of CCA and DRM in fisheries and aquaculture, and vice versa, in these frameworks. The results are given in Annex 7.2 and summarized below.

##### Importance (or potential) of sector noted

Out of the 12 frameworks, 11 noted the importance of the fisheries and aquaculture sector, while the African Regional Strategy for DRR of the AU did not. Of the 11 frameworks that included it, most

expressed the importance of the sector in the context of the importance of aquatic resources to local and rural communities for livelihood and food sources (e.g. the SADC Southern Africa Sub-Regional Framework of Climate Change Programmes), the strengthening of food security (e.g. the EAC Food Security Plan and IOC Framework for Climate Change) and the importance of protecting marine ecosystem health through effective fisheries management and climate change adaptation (e.g. the ASCLME Project Document).

#### **Specific vulnerabilities identified (of relevance to the sector)**

Vulnerabilities of the fisheries and aquaculture sector to climate change and disasters are included in the EAC Food Security Plan, the SADC Southern Africa Sub-Regional Framework of Climate Change Programmes and the ASCLME Project Document. The vulnerabilities are identified as: increased severity of floods and droughts and unexpected extreme climatic events; degradation of coastal fishery resources (impeding fishers' activities and causing subsequent effects such as food insecurity); sea level rise; bleaching of coral reefs off the coasts of Mozambique, Tanzania and South Africa caused by sea temperature rise as a result of El Niño events and global climate change (in 1998, coral bleaching reduced hard coral cover throughout the ASCLMEs region by between 30 and 95 percent); acidification of the oceans as a result of increased carbon dioxide levels; and increased vulnerability of low-lying coastal areas causing losses in productive coastal habitats.

#### **Vulnerable groups identified (including women)**

The same three frameworks that identified specific vulnerabilities (the EAC Food Security Plan, the SADC Southern Africa Sub-Regional Framework of Climate Change Programmes and the ASCLME Project Document) also mentioned vulnerable groups. The EAC Food Security Plan identified women as vulnerable because they dominate agricultural production (including fisheries and aquaculture), constitute the main labour force and yet have very little authority (as a result of gender inequality across the region). This inequality affects a range of issues, including the ability to access credit. Both the SADC and ASCLME documents emphasize the vulnerability of coastal communities who are particularly exposed to the effects of climate change and extreme weather events.

#### **Specific actions proposed to address the vulnerabilities**

Five of the frameworks identified specific actions to address vulnerabilities for the fisheries and aquaculture sectors.

The EAC Food Security Plan suggested increasing the use of improved/appropriate technologies/inputs that are adaptive to climate change impacts in food production; and promoting and supporting the development, availability and use of appropriate technologies that address climate change impacts to improve capacity, including specific outputs to (a) increase capacity for emergency preparedness to ensure that each country has its own food reserve by 2015; (b) reduce dependency on emergency relief food by 30 percent by 2015 through increased support to agricultural insurance and finance to cushion the impact of climate change.

The ASCLME Project Document identified the need to: distinguish between anthropogenic and environmental impacts on ecosystem health; raise awareness and publicize links between climate change related threats to the marine environment and anthropogenic threats; increase the capability of stakeholders as a means of identifying and mitigating environmental threats; and aiding in the creation of adaptive management capability at national and regional levels.

The IOC framework identified the development of models on the effects of climate change on fisheries as a priority action for future studies.

The CAMFA record recommended that Member States, RECs and RFBs mainstream climate change in fisheries policies, development and management programmes.

While the SADC framework on climate change identified the need to improve synergies between the SADC Secretariat (as the coordinating body) and national governments, and to mainstream the work being conducted by NGOs and research institutions into that of the SADC institutions and national governments. Another priority is the need to up-scale the use of supporting measures in order to strengthen national government institutions and the SADC Secretariat through various interventions such as: training to acquire requisite technical skills; policy review to include climate change issues as an emerging phenomenon in sectoral policies; and the access and use of appropriate technologies. The framework also noted the need for a specific funding mechanism to fund adaptation and mitigation actions, to be coordinated by the SADC Secretariat for the benefit of SADC member states.

### **3.2 Overview of results of mapping African, regional and subregionally coordinated initiatives**

The methodology for the mapping process is outlined in Chapter 2.3.4. However, in addition to that methodology, the two main factors for selecting projects, initiatives and activities were: (a) the relevance of the project/initiative/activity to CCA and/or DRM and to fisheries/aquaculture; and (b) the potential for up-scaling or incorporating CCA/DRM or fisheries/aquaculture. Owing to their potential for building on previous work on CCA and DRM, or fisheries and aquaculture, past projects were also included.

The mapping demonstrated that there were two broad categories of regional projects, namely those that are subregional and operate in the Southern and Eastern African region; and those that are regional projects and operate continentally, or across the whole sub-Saharan region (or occasionally, at a global level). Generally speaking, both kinds of regional project have a broad regional mission or aim, but carry out country specific actions. That is to say that a regional project operating on a sub-Saharan level can be operating in a Southern and Eastern African country, but for the purposes of this mapping, is not considered as a subregional project. The results of the mapping are summarized in the table below. In all, 38 projects were identified and 25 of these were CCA and DRM projects that incorporate elements of fisheries and aquaculture. The full list of projects is found in Annex 7.7.

**Table 1 – Summary of the number of regional and subregional projects and focus areas**

|                                                   | No. of projects | No. of current projects | CCA/DRM projects directed at fisheries/aquaculture |
|---------------------------------------------------|-----------------|-------------------------|----------------------------------------------------|
| <b>Regional (Continental)</b>                     | 23              | 13                      | 13                                                 |
| <b>Subregional (Southern and Eastern African)</b> | 15              | 11                      | 12                                                 |
| <b>Total</b>                                      | 38              | 24                      | 25                                                 |

## 4 Overview of national level prioritization and implementation priorities

In order to examine how fisheries and aquaculture are prioritized in different countries, primarily in relation to CCA and DRM, the following national documents were mapped using four criteria to find information on relevant priorities: Poverty Reduction Strategy Papers (PRSP); the United Nations Development Action Frameworks (UNDAF); the Comprehensive Africa Agriculture Development Programme (CAADP); the National Adaptation Programmes of Action (NAPAs); the National Communications; and the Review of Current and Planned Adaptation Action (2011). A summary of the results per country is provided in Annex 7.3 and the main findings are presented below.

Importantly, the summaries and analysis in this section are based on documents that were available, but in some countries the documents were unavailable. For example, few of the relevant national priority documents were available for Somalia and therefore no conclusions can be drawn about that country at this stage. Furthermore, for a number of countries the national CAADP compacts were either not available or were unsigned, or both.

### 4.1 Comparison of national frameworks with respect to fisheries/aquaculture and CCA/DRM

Table 2 summarizes the overall inclusion of criteria in the documents reviewed. For example, out of 24 countries, 15 had NAPAs and the importance of the fisheries/aquaculture sector was acknowledged in nine of them, or in 60 percent of the NAPAs available. Overall, the NAPAs and the National Communications, which are both climate change frameworks, incorporated fisheries and aquaculture concerns the most. Importance of the sector was noted in 60 percent and 73 percent of documents reviewed respectively, and both NAPAs and National Communications noted specific vulnerabilities (11 out of 15 of the NAPAs and 16 out of the 22 National Communications, or 73 percent of the documents reviewed). Following this, the PRSP mentioned the importance of the sector in nine out of 17 documents and noted specific vulnerabilities in 53 percent of the documents reviewed. The Review 2011 documents (which generally summarized the NAPAs and National Communications) were not as representative in mentioning the importance of the sector, but 18 out of 24 documents reviewed identified specific vulnerabilities. Least specific were the UNDAFs and national CAADP compacts, which quite often did not mention the sector at all, or only mentioned some quite general actions (e.g. promoting fish farming). It should be noted that the gaps identified later in the study (Chapter 5) relate to priorities where there is no project or initiative in place to address that priority (if no priority is identified, no gap will be identified). The low priority given to fisheries and aquaculture in general, and in particular in respect to identifying and addressing vulnerabilities of fishing communities and individuals in the UNDAFs and the CAADPs, is considered a key gap and finding of this study.

**Table 2 – Summary of the inclusion of the criteria in the 112 documents reviewed**

| Criteria                                                                | NAPA<br>Total 15<br>documents | NC<br>Total 22<br>documents | PRSP<br>Total 17<br>documents | UNDAF<br>Total 22<br>documents | CAADP<br>Total 12<br>documents | Review 2011<br>Total 24<br>documents |
|-------------------------------------------------------------------------|-------------------------------|-----------------------------|-------------------------------|--------------------------------|--------------------------------|--------------------------------------|
| <i>Importance of sector noted</i>                                       | In 9 documents<br>60 %        | In 16 documents<br>73 %     | In 9 documents<br>53 %        | In 4 documents<br>18 %         | In 2 documents<br>17 %         | In 6 documents<br>25 %               |
| <i>Specific vulnerabilities identified (of relevance to the sector)</i> | In 11 documents<br>73 %       | In 16 documents<br>73 %     | In 9 documents<br>53 %        | In 2 documents<br>9 %          | In 0 documents<br>0 %          | In 18 documents<br>75 %              |
| <i>Women/vulnerable groups identified</i>                               | In 5 documents<br>33 %        | In 7 documents<br>32 %      | In 0 documents<br>0 %         | In 2 documents<br>9 %          | In 0 documents<br>0 %          | In 2 documents<br>8 %                |
| <i>Specific actions proposed to address the vulnerabilities</i>         | In 11 documents<br>73 %       | In 14 documents<br>64 %     | In 10 documents<br>59 %       | In 10 documents<br>45 %        | In 6 documents<br>50 %         | In 6 documents<br>25 %               |

Shading: darker shading indicates a greater inclusion of the criteria in the documents reviewed.

## 4.2 Overview and trends of national priorities across all frameworks

### ***Importance (or potential) of sector noted***

Out of 24 countries, 17 noted the importance or the potential of the fisheries and aquaculture sector. In general, the importance of the sector was reflected through its contribution to GDP, export revenues, employment (including rural livelihoods) and food security/nutrition (animal protein), etc. One country – Djibouti – noted that the sector had significant potential in most of the areas above, while other countries – Comoros, Eritrea, Kenya, Mauritius, South Africa, Tanzania and Zambia – noted the relative importance of the sector but also suggested that it had potential to play a more significant role.

### ***Specific vulnerabilities identified (of relevance to the sector)***

Only five countries did not identify specific vulnerabilities of relevance to the sector: Botswana, Ethiopia, Lesotho, Sudan (including South Sudan) and Swaziland. The vulnerabilities most commonly noted with specific regard to climate change and disaster risk management related to: droughts; heavy rains; floods; increased variability in precipitation; sea level rise (and saltwater intrusion); coastal erosion; water and air temperature rise; coral bleaching; changes in upwelling systems; increase in frequency of storms and cyclones; soil erosion; eutrophication; reduction in the flow of surface water; and increase in evaporation.

These were seen to potentially cause degradation or destruction of spawning areas and habitats; destruction of coastal infrastructure; migration of fish; changes in habitats (e.g. mangrove, coral reefs and seagrass beds); reduction of biodiversity; reduction of productivity levels; changes in species life cycles; damage to/loss of gear and infrastructure; siltation of rivers, lakes and ponds; proliferation of invasive water plants and other species; and proliferation of toxins through algal blooms.

Other noted vulnerabilities related to significant post-harvest losses; overexploitation of fisheries resources; overexploitation of mangrove forests and deforestation in general; pollution (e.g. from waste); use of destructive gear (e.g. small mesh nets); absence or lack of implementation/enforcement of a national policy or legal framework for the sector; illegal and unreported fishing; unsuitable fish farming; introduction of exotic species; and conflicting developments in the coastal zone (e.g. tourism, local communities, protected areas, industry, agriculture and sewage disposal).

Together, these vulnerabilities and impacts may cause a loss of livelihoods; loss of income; greater risks involved in fishing at sea; food insecurity; and displacement/migration of people to and from fishing areas.

### ***Vulnerable groups identified (including women)***

Twelve of the countries (ten of the LDCs) identified vulnerable groups relevant<sup>22</sup> to the sector. Only one of the landlocked countries (Zambia) identified fishing communities as particularly vulnerable. Fishing communities/households are most vulnerable to climate change owing to their dependence on a resource which is itself vulnerable to climate change and variability. In addition, these groups are vulnerable because of their general poverty; their geographic remoteness; lack of alternative livelihoods; lack of support systems (health care, credit and loan facilities, education, etc.); and food insecurity.

In some cases, there was no specific mention of fishing communities being the most vulnerable to climate change. However, fishers were mentioned as being generally more vulnerable as a result of their high poverty levels or precarious situation (e.g. Uganda). In other countries (Malawi and Namibia),

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<sup>22</sup> Broadly defined to also include women (considering their role in food security, nutrition and natural resource management) as well as youth and other people potentially in need of livelihood opportunities, e.g. ex-combatants.



women were identified as particularly vulnerable in the context of their role in food security and natural resource management.

#### ***Specific actions proposed to address the vulnerabilities***

Of the 24 countries, 19 proposed specific actions to address their vulnerabilities. Most countries proposed an array of actions addressing both specific climate change and/or disaster-related issues, as well as general management/development of the sector. Two countries (Djibouti and Lesotho) proposed more general actions, including sustainable management measures and development of a fisheries policy. Two other countries (Ethiopia and Namibia) only proposed actions relating to aquaculture/mariculture.

Actions proposed that relate specifically to CCA and DRM included strengthened coastal zone monitoring, planning and management; establishment/improvement of meteorological/oceanographic monitoring and forecasting; establishment of early warning systems (with regard to floods, droughts, etc.); awareness-raising among the population and vulnerable groups; resettlement of vulnerable populations; reduction of siltation through, for example, reforestation; introduction of Fish Concentration Mechanisms (FCMs) to reduce fishing pressure on the coast and reduce the risk of fishers at sea; reduction/prevention of poisoning through consumption of toxic marine living resources by monitoring of oceanographic parameters, particularly the reefs, and creating awareness among medical staff; and strengthening adaptive management approaches (including the ecosystem approach to fisheries).

Other supporting actions generally included promotion and development of aquaculture (based on more resilient/tolerant species); stocking of rivers, lakes and ponds; ensuring sustainable management of fisheries resources (including combatting illegal, irresponsible and overfishing); reducing post-harvest losses; establishing effective MCS; strengthening the policy/legal/institutional framework; strengthening research capacity; development of processing and marketing infrastructure; reduction of pollution; reforestation (including of mangroves); establishment of protected/closed areas (including for mangroves, coral reefs and seagrass); strengthening co-management systems; and diversification of livelihoods.

### **4.3 Overview of results of mapping national initiatives and actions**

The results of the stakeholder mapping survey (mentioned in Section 2.3.4) were in summary, quite general. Responses were received from 72 sources, though not all were relevant, and some project information was duplicated. Commonly, respondents highlighted the role of government departments of agriculture or fisheries in aiding the fisheries sector to adapt, though based on these responses very few projects specifically focused on CCA and/or DRM within the fisheries sector. It was difficult to find information (in documents or internet searches) on projects being implemented by government departments, so the survey was a useful mechanism for acquiring this knowledge from individuals. An example of a relevant project identified by survey response is a national project implemented in Ethiopia by the National Fisheries Research Centre: “Impacts of anthropogenic activities and climate change on some rift valley and high lakes of Ethiopia”. This project identifies the impacts of anthropogenic activities and climate change on the livelihood of fishing communities in the rift valley and high lakes of Ethiopia. The primary focus is to use the results of the research to develop adaptation or mitigation measures for the communities directly affected by impacts on the lakes.

The results of mapping of national fisheries and aquaculture initiatives and programmes relevant to CCA and/or DRM and CCA and/or DRM initiatives and programmes relevant to fisheries and aquaculture is shown in the national project tables in Annex 7.8. The methodology for this process is outlined in Chapter 2.3.4. However, it is important to note that when selecting projects, initiatives and activities, the two main criteria for including activities in this mapping were: (a) the relevance of the project/initiative/activity to CCA and/or DRM and to fisheries/aquaculture; and (b) the potential for up-

scaling or incorporating CCA/DRM or fisheries/aquaculture, where only one of the themes is focused on in the project. Owing to their potential to build on previous work on CCA and DRM, or on fisheries and aquaculture, past projects were also included.

In total, 28 projects were identified and 22 of these were CCA or DRM projects that directly incorporated aspects of fisheries or aquaculture.

**Table 3 – Summary of the number of national initiatives and actions**

| Country       | No. of projects | No. of current projects | CCA/DRM projects directed at fisheries/aquaculture |
|---------------|-----------------|-------------------------|----------------------------------------------------|
| Angola        | 0               | 0                       | 0                                                  |
| Botswana      | 0               | 0                       | 0                                                  |
| Burundi       | 0               | 0                       | 0                                                  |
| Comoros       | 4               | 4                       | 2                                                  |
| Djibouti      | 0               | 0                       | 0                                                  |
| Eritrea       | 1               | 1                       | 1                                                  |
| Ethiopia      | 3               | 0                       | 2                                                  |
| Kenya         | 2               | 2                       | 2                                                  |
| Lesotho       | 0               | 0                       | 0                                                  |
| Madagascar    | 2               | 0                       | 2                                                  |
| Malawi        | 2               | 1                       | 2                                                  |
| Mauritius     | 1               | 1                       | 1                                                  |
| Mozambique    | 1               | 0                       | 1                                                  |
| Namibia       | 2               | 1                       | 2                                                  |
| Rwanda        | 1               | 1                       | 1                                                  |
| Seychelles    | 2               | 2                       | 2                                                  |
| Somalia       | 0               | 0                       | 0                                                  |
| South Africa  | 0               | 0                       | 0                                                  |
| Sudan         | 0               | 0                       | 0                                                  |
| Swaziland     | 0               | 0                       | 0                                                  |
| Tanzania      | 5               | 4                       | 4                                                  |
| Uganda        | 0               | 0                       | 0                                                  |
| Zambia        | 0               | 0                       | 0                                                  |
| Zimbabwe      | 2               | 2                       | 0                                                  |
| <b>TOTAL:</b> | <b>28</b>       | <b>19</b>               | <b>22</b>                                          |

## 5 Gap analysis

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### 5.1 Gaps in regional priorities compared to implementation

To assess gaps between what needs to be done and what is being done (or what has been done) to address climate change and disaster risk in fisheries and aquaculture at a regional level, the following methodology was used. Firstly, the overview in Section 3.1 of the level of consideration<sup>23</sup> of CCA and DRM in fisheries and aquaculture, and vice versa, in regional strategies and frameworks was used to identify particular vulnerabilities and priorities. Secondly, the findings were compared against the subregional and regional project activities listed in Annex 7.7. The purpose of this exercise was to identify broad gaps rather than detailed discrepancies. One of the main limitations of this approach was that varying degrees of information were available for different projects and occasionally arbitrary judgements had to be made about whether a project activity could be deemed to correspond to a vulnerability/priority action or not; project activities rarely matched vulnerabilities and priority actions perfectly. Taking the above limitation into account, the primary gap identified appeared to be a lack of support for initiatives or investments in:

- Reducing women's vulnerability and realizing their full potential in agricultural production (including fisheries and aquaculture production). Although women are a significant part of the labour force, they lack access to credit and this impacts on their ability to increase their community's resilience to climate change and disasters and improve nutrition and economic situations.

However, there were more opportunities than clear gaps:

- When addressing the vulnerability of coastal communities to impacts of climate change and disasters, the exchange of best practices and lessons learned between targeted sub-regions and non-targeted sub-regions or countries could be beneficial. For example, the GEF-funded BCLME project targeting Angola, Namibia and South Africa, could facilitate such exchanges with other coastal SADC countries and with the ASCLME project.
- In terms of adaptive food production systems and emergency preparedness/prevention (including insurance), some specific support for fisheries and aquaculture may be warranted in order to decrease reliance on food relief. In particular, some targeted support to aquaculture development in this region may be beneficial because it might increase the ability of communities to adapt to climate change and disaster impacts.

### 5.2 Gaps in national priorities compared to implementation

To assess gaps between what needs to be done and what is being done (or what has been done) to address climate change and disaster risk in fisheries and aquaculture at a national level, a similar methodology to the one described in 5.1 was used. Expressed country priority actions (as per Annex 6.3) were compared against project activities described in Annexes 7.7 – 7.8 (both national and relevant regional projects) for each of the countries. Gaps were mainly identified when expressed priority actions did not have any obvious corresponding project activities at the national<sup>24</sup> level, but there were also cases of project activities taking place despite there being no (or no directly corresponding) expressed priority actions. As in 5.1, the purpose of this exercise was to identify broad gaps (e.g. the need for integrated coastal zone management, co-management, early warning systems or safety at sea, etc.)

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<sup>23</sup> Using the following criteria: Importance of sector noted; specific vulnerabilities identified (of relevance to sector); vulnerable groups identified (including women); and specific actions proposed to address the vulnerabilities.

<sup>24</sup> This means that some regional or continent-wide projects, for which the national-level activities were not noted, were not taken into account in the analysis.

rather than detailed discrepancies. And, again as in 5.1, a limitation was that varying degrees of information were available for different projects and occasionally arbitrary judgements had to be made about whether a project activity could be deemed to correspond to a vulnerability/priority action or not.

Taking the above limitation into account, the primary gaps identified appeared to be: support for the development or promotion of fish farming – including integrated farming – as a means to increase resilience of communities and individuals to risks in general, by diversifying food sources and livelihood options. This appeared to be a gap for seven countries: Burundi, Comoros, Madagascar, Mauritius, Namibia, Uganda and Zambia. Each of these countries had identified this as a priority intervention in one or more of the policy documents reviewed, but no direct project activity was addressing this need. Improvement of fish processing practices, including storage capacity and marketing of fish products in order to increase their resilience and overall economic viability of vulnerable fishing communities was also identified as a primary gap in seven countries: Burundi, Comoros, Eritrea, Mozambique, Sudan, Uganda and Zambia.

Monitoring of weather, climate, ocean, lake or ecosystem conditions, including supporting early warning of e.g. floods and droughts was identified as a primary gap in six countries: Angola, Eritrea, Kenya, Malawi, Mozambique and Tanzania. For Djibouti, Eritrea, Sudan, Tanzania and Zambia, sustainable fisheries management, including reducing the risk of overfishing through improved monitoring, control and surveillance (MCS) was identified as a priority issue. In the coastal countries – Eritrea, Madagascar, Mauritius, Mozambique and Tanzania – strengthening integrated coastal zone management, including marine protected areas and mangrove management/conservation was acknowledged as an important gap that had implications for increasing resilience to climate change and disaster impacts. Strengthening co-management was identified as a national priority in Djibouti, Eritrea, Madagascar, Malawi and Zambia. Finally, improving water quality management, including erosion, siltation and weed control, was identified by four countries (Uganda, Sudan, Tanzania and Zambia) as a measure that would assist communities to increase productivity and the overall robustness of their fisheries and water systems.

Other recurring gaps included:

- support for increasing productivity in fisheries, to improve the socioeconomic status of communities and therefore their ability to deal with change (Djibouti, Kenya and Lesotho);
- the introduction of Fish Concentration Mechanisms (FCM) to reduce coastal fishing pressure and risks to fishers (Comoros and Madagascar);
- community awareness through, and participation in, risk reduction programmes (Eritrea and Seychelles);
- creating alternative livelihoods or support for income diversification was an issue raised in national priorities, but not reflected in implementation activities (Madagascar and Zambia);
- restocking of lakes, rivers and dams (Malawi and Zambia);
- coral farming to strengthen reefs and increase their resilience to pressures of a changing climate (Madagascar and Mauritius); and
- action against illegal and overfishing, which reduces the availability of valuable resources to vulnerable communities (Mozambique and Tanzania).

Other gaps occurred only in one country. For example, in Comoros there is a need to reduce or prevent poisoning caused by the consumption of marine resources. Such poisoning might be exacerbated by varying climatic conditions and could be addressed by monitoring oceanographic parameters and creating awareness among medical staff. Importantly, for some countries there were no clearly expressed priority actions and therefore it was not possible to identify any specific gaps. This was the case for Botswana, Somalia and Zimbabwe.

It should be noted that, there may be some regional or continent-wide projects that do address these needs but which were not taken into account in the analysis owing to a lack of detailed (country-specific) information.

### 5.3 Additional gaps identified by experts and stakeholders

In addition to the above approach, gaps were identified from recommendations made by experts and stakeholders<sup>25</sup>. These recommendations were often more general than country/sub-region-specific and therefore only in relevant cases were the recommendations compared against regionally expressed priorities (as per Section 5.1 above) and against countries' vulnerabilities and expressed priority actions (as per Section 5.2). This was to support the identification of priority countries and regions.

#### 5.3.1 Actions to be taken through subregional/regional projects, programmes and/or bodies

- Support the inclusion of CCA/DRM or fisheries/aquaculture in existing CCA/DRM or fisheries/aquaculture projects/programmes, as appropriate. Applicable to: with regard to inclusion of CCA/DRM in existing fisheries/aquaculture projects/programmes, this could be relevant for the Strategic Action Program Development for the Lake Victoria Basin. With regard to inclusion of fisheries/aquaculture in existing CCA/DRM projects/programmes, this could be relevant for Africa Climate Change Resilience Alliance (ACCRA), Great Lakes Centre for Culture, Peace and Development (GLCPD) and the Regional Climate Change Programme (see Annex 7.7).
- Enhance collaboration between RECs and RFBs on fisheries/aquaculture and CCA/DRM-related policy formulation and establish procedures for information sharing (in addition to other transboundary information sharing protocols) as required. Applicable to: all the RECs (EAC, IOC and SADC) identified fisheries and aquaculture as important and actions to address vulnerabilities were proposed, but none of the RFBs prioritized CCA or DRM. Although this is broadly applicable to all, owing to the nature of the RFBs, it may be appropriate to focus on those not dealing with offshore resources, namely CIFA and SWIOFC.
- Support the inclusion of fisheries and aquaculture in regional DRM and DRR policy and planning processes and frameworks. Applicable to: African Regional Strategy for DRR.

#### 5.3.2 Country-specific actions

- Support the inclusion of fisheries and aquaculture in national planning processes and frameworks, taking into consideration community needs, such as in the NAPAs, National Communications, CAADP compacts, Poverty Reduction Strategy Papers (PRSPs), DRM policies and plans, UNDAFs, etc. Applicable to: this is primarily applicable to UNDAFs (nine countries<sup>26</sup>) and CAADPs (six countries<sup>27</sup>), where these were identified and/or signed. Notably, whereas the UNDAF was only unidentified for two countries (Seychelles and Somalia), 12 countries<sup>28</sup> had either not signed CAADPs or they were simply not available. With regard to aquaculture, there might be a need for broader inclusion, e.g. also in NAPAs and National Communications because, although the promotion of aquaculture or

<sup>25</sup> Sources include: FAO, 2011. Report of the African Regional Consultative Meeting on Securing Sustainable Small-Scale Fisheries: Bringing together responsible fisheries and social development, Maputo, Mozambique, October 2010. FAO Fisheries and Aquaculture Report No 963. Rome, FAO. 68pp.; Campbell, J. 2010. Reduced vulnerability of fishing and fish farming communities to natural disasters in Africa. 26pp.; Muir, J. Hard rains and strong tides: a review of African region fishery sector initiatives and programmes on climate change and disaster risk management. Background paper for Outcome 3 of NFFP (GCP/RAF/463/MUL) – SIDA Africa Programme; and meetings with NEPAD and FAO experts, 2012.

<sup>26</sup> Namely Angola, Botswana, Burundi, Djibouti, Ethiopia, Malawi, Rwanda, South Africa and Swaziland.

<sup>27</sup> Namely Angola, Ethiopia, Malawi, Rwanda, Seychelles and Swaziland.

<sup>28</sup> Namely Botswana, Comoros, Djibouti, Eritrea, Lesotho, Madagascar, Mauritius, Namibia, Somalia, South Africa, Sudan (including South Sudan) and Zimbabwe.

aquaculture development is quite often listed as a priority action, the vulnerabilities of aquaculture in relation to disaster risks and climate change may need greater consideration.

- Supporting implementation of priority actions in national planning where fisheries and aquaculture are mentioned, in the NAPAs of LDCs by supporting the development of project identification forms (PIFs) and project documents. Applicable to: 12<sup>29</sup> countries in terms of fisheries and eight<sup>30</sup> countries in terms of aquaculture, but this also needs to be considered alongside the gaps identified in Section 5.2.
- Promoting approaches and practices such as EAF and EAA, which contribute to reducing the exposure and vulnerability of communities by developing and implementing management plans that take into account CCA and DRM needs and support implementation. Applicable to: broadly applicable but a logical start could be to start with the countries involved in the EAF-Nansen project.<sup>31</sup>
- Climate proofing of the national fisheries (CAADP) investment plans, as well as providing step-by-step guidance on how to do this. Applicable to: countries that have identified their fisheries as underdeveloped or with potential: Djibouti, Eritrea, Kenya, Mauritius, South Africa (aquaculture potential), Swaziland (aquaculture potential), Tanzania and Zambia; and countries that have identified aquaculture as priority: Burundi, Comoros, Ethiopia, Madagascar, Malawi, Mauritius, Namibia, Tanzania, Uganda and Zambia.

### 5.3.3 Actions with regard to local-national-regional CCA/DRM plans and implementation

- Supporting local, national and regional policy linkages and two-way communication through pilot activities for the development and implementation of DRM and CCA plans in a participatory and integrated manner in selected fishing/fish farming communities and countries. Applicable to: 17<sup>32</sup> of the countries identified vulnerabilities to extreme weather (floods, droughts, heavy rain, etc.) and sea-level rise and 14<sup>33</sup> of these proposed specific priority actions aimed at addressing the vulnerabilities.
- Establish early warning systems at local, national and international levels and training for fishers in safe fishing and navigation practices. Establish a framework for safety at sea, including making safety equipment available on national and local markets. Applicable to: the same countries identified in bullet point one, above.
- Improve collaboration between fisheries administrations and national DRM institutes, with better provision for DRM support in disaster-prone areas, better information flow at all levels and across sectors, capacity building and involvement of fishing communities in national contingency planning. Applicable to: the same countries identified in bullet point one, above.
- Establish DRM committees, or link with co-management or community development committees, trained in risk assessment, management and communication at different levels. Applicable to: the same countries identified in bullet point one, above.

<sup>29</sup> Namely Angola, Comoros, Djibouti, Eritrea, Lesotho, Madagascar, Malawi, Mozambique, Sudan (including South Sudan), Tanzania, Uganda and Zambia.

<sup>30</sup> Namely Burundi, Comoros, Ethiopia, Madagascar, Malawi, Tanzania, Uganda and Zambia.

<sup>31</sup> Relevant Member countries: Angola, Comoros, Kenya, Madagascar, Mauritius, Mozambique, Namibia, Seychelles, Somalia, South Africa and Tanzania.

<sup>32</sup> Namely Angola, Burundi, Comoros, Djibouti, Eritrea, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Rwanda, Seychelles, South Africa, Tanzania, Uganda and Zambia.

<sup>33</sup> Namely Angola, Comoros, Eritrea, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Seychelles, South Africa, Sudan (including South Sudan), Tanzania, Uganda and Zambia.

### 5.3.4 Other relevant actions

- Support strategy and policy formulation and implementation at regional and national levels of the relevant principles relating to disaster and climate change included in the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries (under development) and other relevant instruments on DRM and CCA. Applicable to: this recommendation is of an organizational nature (FAO, NEPAD, etc.).
- Provide support to AUC/NEPAD and their partners in implementing the Africa Regional Strategy for Disaster Risk Reduction and its Programme of Action with regard to fisheries and aquaculture. Applicable to: this recommendation is of an organizational nature (FAO, NEPAD, etc.).
- Strengthen and enhance gender-based approaches in fisheries management, climate change and disaster planning through, for example, strengthening FAO and NPCA gender programmes. Applicable to: this recommendation is of an organizational nature (FAO, NEPAD, etc.).
- Promoting the dissemination of gained experiences and lessons learnt so that they may feed into national, subregional and regional policies and strategies through, for example, the development of good practices, the organization of good practice exchange workshops, co-prepared and organized with RECs and/or RFBs. Applicable to: this recommendation is of an organizational nature (FAO, NEPAD, etc.) but may be relevant for the Pan African Fisheries Reform Policy and Strategy that is currently being elaborated within the NEPAD and AU.
- Supporting opportunities for improved policy coherence and coordination of DRM and CCA initiatives in fisheries and aquaculture at all levels including, for example, the establishment of a working group on climate change and disasters in fisheries and aquaculture within NEPAD and the preparation of joint actions, such as policy briefs on climate change, disasters and crises, to inform CAMFA. Applicable to: this recommendation is of an organizational nature (FAO, NEPAD, etc.).

### 5.4 Workshop recommendations

Participants in the workshop on climate change, disasters and crises in the fisheries and aquaculture sector in Southern and Eastern Africa – held in Maputo, Mozambique on 22 to 24 April 2013 – also agreed on recommendations for addressing CCA and DRM in fisheries and aquaculture in Southern and Eastern Africa. In summary, the recommendations were:

- Carry out climate change and disaster vulnerability assessments on specific fisheries. Include socioeconomic aspects and potential adaptation and disaster risk reduction measures.
- Development of livelihood diversification, for example, through adding value to processed products or supporting the development of commercial integrated aquaculture systems.
- Systemic environmental monitoring of water bodies and meteorological conditions and strengthening early warning systems in inland fisheries to improve understanding and predictability of change and trends, and encourage early action.
- Continued analysis of migratory patterns of pelagic stocks, again as an indicator of change in climatic conditions and to inform policy makers and regional fishery bodies.
- Continued mainstreaming of CCA and DRM policy in the fisheries and aquaculture sector, and vice versa, at national and regional levels.
- Strengthened communication between scientists, practitioners and policy makers to increase the robustness of the governance system so as to better respond to change.

Of concern in marine fisheries, in respect to CCA and DRM, is the need for the sector to implement adaptive fisheries policies and management regulations. This will assist in rapid responses to perceived climate threats which will increase both community and ecosystem resilience. Relevant actions are vulnerability assessments and habitat rehabilitation. With regard to inland fisheries and aquaculture, a large concern is the increasing pressure being placed on aquatic systems, leading to the overuse and

exploitation of fisheries and water resources. Many factors, such as food requirements and growing populations, compound the stresses placed on the system by climate change and disasters. It was noted that more awareness of climate change and disaster risks and stronger management measures, including climate change and disaster risk considerations, need to be implemented to protect livelihoods, resources and reduce their overuse. The Small Island Developing States are at the forefront of exposure to the physically damaging effects of climate change and disasters. In order to adapt and reduce their vulnerability, there is a need to strengthen CCA and DRM and investigate new methods of fishing, such as FADs and cage mariculture.

## 5.5 Categorization of gaps and summary of the gap analysis

The aim of this Chapter was to identify and summarize gaps and recommendations from a number of different sources. Sections 5.1 and 5.2 summarized gaps at a regional and national level. Gaps were identified through a gap analysis based on the systematic approach of comparing identified priorities against known actions. This was based on the information presented in Chapters 2 and 3 and follows the extensive review of 126 national and regional level framework documents. Section 5.3 summarizes gaps/recommendations identified by experts and stakeholders through a survey (Annex 7.5), internet searches and consultations with 49 relevant organizations (Annex 7.4) and a review of 55 relevant documents and reports (Annex 7.6). Finally, Section 5.4 summarizes gaps/recommendations identified at a regional workshop on CCA and DRM which took place in 2012 and which focused on the Eastern and Southern African regions.

Therefore, in this Chapter the gaps/recommendations have been categorized based on their source. Although these gaps/recommendations are not comparable in a clear-cut way, because of their varying degree of detail and their different targets – community, national, regional and continental – a categorization of the gaps has been undertaken, with the gaps/recommendations grouped according to their approach to reducing vulnerabilities and increasing resilience to climate change and disaster impacts for individuals and communities. Four categories of approaches used were:

1. Strengthened governance to address disasters and climate change impacts affecting fisheries and aquaculture;
2. Addressing and reducing underlying risks through prevention and adaptation measures;
3. Managing effective response and improving preparedness for disasters and climate change; and
4. Improved early warning systems and availability of information.

In the sections below the gaps identified in 5.1 to 5.4 have been re-grouped under these approaches and are listed below:

### 5.5.1 Strengthened governance to address disasters and climate change impacts affecting fisheries and aquaculture

- Support the inclusion of fisheries and aquaculture in national planning processes and frameworks, taking into consideration community needs, such as in the NAPAs, National Communications, CAADP compacts, Poverty Reduction Strategy Papers (PRSPs), DRM policies and plans, UNDAFs, etc. Applicable to: this is primarily applicable to UNDAFs (nine countries<sup>34</sup>) and CAADPs (six countries<sup>35</sup>), where these were identified and/or signed. Notably, whereas the UNDAF was only unidentified for two countries (Seychelles and Somalia), 12 countries<sup>36</sup> had either not signed CAADPs or they were simply not available. With regard to aquaculture, there might be a need for broader inclusion, e.g. also in NAPAs and National Communications because, although the promotion or development of

<sup>34</sup> Namely Angola, Botswana, Burundi, Djibouti, Ethiopia, Malawi, Rwanda, South Africa and Swaziland.

<sup>35</sup> Namely Angola, Ethiopia, Malawi, Rwanda, Seychelles and Swaziland.

<sup>36</sup> Namely Botswana, Comoros, Djibouti, Eritrea, Lesotho, Madagascar, Mauritius, Namibia, Somalia, South Africa, Sudan (including South Sudan) and Zimbabwe.



aquaculture are quite often listed as priority actions, the vulnerabilities of aquaculture in relation to disaster risks and climate change may need greater consideration.

- Climate proofing of the national fisheries (CAADP) investment plans, as well as providing step-by-step guidance on how to achieve this. Applicable to: countries that have identified their fisheries as underdeveloped or with potential: Djibouti, Eritrea, Kenya, Mauritius, South Africa (aquaculture potential), Swaziland (aquaculture potential), Tanzania and Zambia; also countries that have identified aquaculture as priority: Burundi, Comoros, Ethiopia, Madagascar, Malawi, Mauritius, Namibia, Tanzania, Uganda and Zambia.
- Support the inclusion of CCA/DRM or fisheries/aquaculture in existing CCA/DRM or fisheries/aquaculture projects/programmes, as appropriate. Applicable to: with regard to inclusion of CCA/DRM in existing fisheries/aquaculture projects/programmes, this could be relevant for the Strategic Action Programme Development for the Lake Victoria Basin. With regard to inclusion of fisheries/aquaculture in existing CCA/DRM projects/programmes, this could be relevant for Africa Climate Change Resilience Alliance (ACCRA), Great Lakes Centre for Culture, Peace and Development (GLCPD) and the Regional Climate Change Programme (see Annex 6.8).
- Enhance collaboration between RECs and RFBs on fisheries/aquaculture and CCA/DRM-related policy formulation and establish procedures for information sharing, together with other transboundary information sharing protocols, as required. Applicable to: all the RECs (EAC, IOC and SADC) identified fisheries and aquaculture as important and actions to address vulnerabilities were proposed, but none of the RFBs prioritized CCA or DRM. Although this is broadly applicable to all, owing to the nature of the RFBs, it may be appropriate to focus on those not dealing with offshore resources, namely CIFAA and SWIOFC.
- Support the inclusion of fisheries and aquaculture in regional DRM and DRR policy and planning processes and frameworks. Applicable to: African Regional Strategy for DRR.
- Develop a framework of action or policy as a new instrument with the goal of reducing the vulnerability of small-scale fisheries communities to natural disasters and climate change. Include a set of principles to guide future actions, including emergency response. Applicable to: this recommendation is of an organizational nature (FAO, NEPAD, etc.).
- Support opportunities for improved policy coherence and coordination of DRM and CCA initiatives in fisheries and aquaculture at all levels including, for example, the establishment of a working group on climate change and disasters in fisheries and aquaculture within NEPAD, the preparation of joint actions, such as policy briefs on climate change, disasters and crises, to inform CAMFA; and support to the implementation of the relevant principles relating to disaster and climate change included in the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries (under development). Applicable to: NEPAD, FAO and most countries.
- Build capacity to respond to socioeconomic impacts of climate change by developing governance and coordination between relevant government departments and facilitating policy integration. Applicable to: it is anticipated that most countries would benefit from greater coordination.
- Provide support to AUC/NEPAD and their partners in implementing the Africa Regional Strategy for Disaster Risk Reduction and its Programme of Action in the fisheries and aquaculture sectors. Applicable to: this recommendation is of an organizational nature (FAO, NEPAD, etc.).
- Strengthen and enhance gender-based approaches in fisheries management, climate change and disaster risk reduction planning by, for example, strengthening FAO and NPCA gender programmes and implementation. Applicable to: this recommendation is of an organizational nature (FAO, NEPAD, etc.).
- Continued mainstreaming of CCA and DRM policy into fisheries and aquaculture sector, and vice versa.
- Promoting the dissemination of gained experiences and lessons learnt so that they may feed into national, subregional and regional policies and strategies through, for example, the organization of best practice exchange workshops, co-prepared and organized with RECs and/or RFBs, the development of guidelines and/or other publications. Applicable to: this recommendation is of an organizational nature (FAO, NEPAD, etc.).

### 5.5.2 Addressing and reducing underlying risks through prevention and adaption measures

- In order to decrease reliance on food relief, some specific support with regard to fisheries and aquaculture may be warranted. In particular, some targeted support for aquaculture development and related CCA/DRM could be beneficial to this region. Applicable to: this gap is generally applicable across the region.
- Support for the development/promotion of fish farming – including integrated farming – as a means to increase the resilience of communities and individuals to risks in general, by diversifying food sources and livelihood options. Applicable to: this appeared to be a gap for seven countries: Burundi, Comoros, Madagascar, Mauritius, Namibia, Uganda and Zambia. Each of these countries identified this as a priority intervention in one or more of the policy documents reviewed, but no direct project activity was identified that was addressing this need.
- Improvement of fish processing practices, including storage capacity and marketing of fish products, in order to increase resilience and overall economic viability. Applicable to: Burundi, Comoros, Eritrea, Mozambique, Sudan, Uganda and Zambia.
- Improving water quality management by controlling erosion, siltation and weeds. Applicable to: this issue was identified by Uganda, Sudan, Tanzania and Zambia.
- Increasing productivity in fisheries, so as to improve the socio-economic status of communities and therefore their ability to deal with change. Applicable to: Djibouti, Kenya and Lesotho.
- Introduction of Fish Concentration Mechanisms (FCM) to reduce coastal fishing pressure and risk to fishers. Applicable to: Comoros and Madagascar.
- Creating alternative livelihoods and support for income diversification was an issue raised in national priorities but not reflected in implementation activities. Applicable to: Madagascar and Zambia.
- Action against illegal fishing and overfishing is lacking, which reduces the availability of valuable resources to vulnerable communities. Applicable to: Mozambique and Tanzania.
- Restocking of lakes, rivers and dams to increase productivity of stocks and their resilience to change. Applicable to: Malawi and Zambia.
- Coral farming to strengthen reefs and increase their resilience to the pressures of a changing climate. Applicable to: Madagascar and Mauritius.
- Reduction or prevention of poisoning caused by the consumption of marine resources, by monitoring oceanographic parameters and creating awareness among medical staff. Applicable to: Comoros.
- Promoting approaches such as EAF and EAA that contribute to reducing the exposure and vulnerability of communities through the development and implementation of management plans that take CCA and DRM needs into account and support implementation. Applicable to: broadly applicable but a logical start could be to begin with the countries involved in the EAF-Nansen project.<sup>37</sup>
- Development of livelihood diversification, for example, through supporting commercial integrated aquaculture systems. Applicable to: noted as a gap in the workshop by landlocked countries.
- Strengthening co-management as a national priority as a means to engage communities in processes and preparation. Applicable to: Djibouti, Eritrea, Madagascar, Malawi and Zambia.
- Sustainable fisheries management, including reducing the risk of overfishing through improved monitoring, control and surveillance (MCS), effectively reducing vulnerability to the impacts of climate change and disasters. Applicable to: Djibouti, Eritrea, Sudan, Tanzania and Zambia.
- Supporting local, national and regional policy linkages and two-way communication through pilot activities for the development and implementation of DRM and CCA plans in a participatory and integrated manner in selected fishing/fish farming communities and countries. Applicable to: 17<sup>38</sup> of

<sup>37</sup> Relevant member countries: Angola, Comoros, Kenya, Madagascar, Mauritius, Mozambique, Namibia, Seychelles, Somalia, South Africa and Tanzania.

<sup>38</sup> Namely Angola, Burundi, Comoros, Djibouti, Eritrea, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Rwanda, Seychelles, South Africa, Tanzania, Uganda and Zambia.

the countries identified vulnerabilities with regard to extreme weather (floods, droughts, heavy rain, etc.) and sea-level rise, and 14<sup>39</sup> of these proposed specific priority actions aimed at addressing them.

- Supporting implementation of priority actions in national planning where fisheries and aquaculture are mentioned, e.g. in the NAPAs of LDCs by supporting the development of project identification forms (PIFs) and project documents. Applicable to: 12<sup>40</sup> countries in terms of fisheries and eight<sup>41</sup> countries in terms of aquaculture.
- In the coastal countries, strengthening integrated coastal zone management, including marine protected areas and mangrove management/conservation was acknowledged as an important gap that had significant implications for increasing resilience to climate change and disaster impacts<sup>42</sup>. Applicable to: Eritrea, Madagascar, Mauritius, Mozambique and Tanzania.
- Establish or strengthen community-based DRM, or link with co-management or community development committees trained in risk assessment, management and communication at different levels. Applicable to: see bullet point above. However, the gaps of Section 4.2 also need to be considered.

### 5.5.3 Managing effective response and improving preparedness for disasters and climate change

- Community awareness of, and participation in, risk reduction programmes. Applicable to: Eritrea and Seychelles.
- Improve collaboration between fisheries administrations and national DRM institutes, with better provision for DRM support in disaster-prone areas, better information flow at all levels and across sectors, capacity building and involvement of fishing communities in national contingency planning. Applicable to: 17<sup>43</sup> of the countries identified vulnerabilities with regard to extreme weather (floods, droughts, heavy rain, etc.) and sea-level rise and 14<sup>44</sup> of these proposed specific priority actions aimed at addressing the vulnerabilities.

### 5.5.4 Improved early warning systems and availability of information

- Monitoring of weather, climate, ocean, lake or ecosystem conditions, including supporting early warning with regard to e.g. floods and droughts. Applicable to: Angola, Eritrea, Kenya, Malawi, Mozambique and Tanzania.
- Establish early warning systems at local, national and international levels, and training for fishers in safe fishing and navigation practices. Establish a framework for safety at sea, including making safety equipment available on national and local markets. Applicable to: 17<sup>45</sup> of the countries identified vulnerabilities with regard to extreme weather (floods, droughts, heavy rain, etc.) and sea-level rise, and 14<sup>46</sup> of these proposed specific priority actions aimed at addressing the vulnerabilities.

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<sup>39</sup> Namely Angola, Comoros, Eritrea, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Seychelles, South Africa, Sudan (including South Sudan), Tanzania, Uganda and Zambia.

<sup>40</sup> Namely Angola, Comoros, Djibouti, Eritrea, Lesotho, Madagascar, Malawi, Mozambique, Sudan (including South Sudan), Tanzania, Uganda and Zambia.

<sup>41</sup> Namely Burundi, Comoros, Ethiopia, Madagascar, Malawi, Tanzania, Uganda and Zambia.

<sup>42</sup> Establishing MPAs was noted as a priority amongst the Small Island Developing States in the workshop.

<sup>43</sup> Namely Angola, Burundi, Comoros, Djibouti, Eritrea, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Rwanda, Seychelles, South Africa, Tanzania, Uganda and Zambia.

<sup>44</sup> Namely Angola, Comoros, Eritrea, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Seychelles, South Africa, Sudan (including South Sudan), Tanzania, Uganda and Zambia.

<sup>45</sup> Namely Angola, Burundi, Comoros, Djibouti, Eritrea, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Rwanda, Seychelles, South Africa, Tanzania, Uganda and Zambia.

<sup>46</sup> Namely Angola, Comoros, Eritrea, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Seychelles, South Africa, Sudan (including South Sudan), Tanzania, Uganda and Zambia.

- Build scientific knowledge of the effects and impacts of climate change. This will assist in building resilience and taking action against extreme weather events and disasters<sup>47</sup>.
- Systemic environmental monitoring of water bodies and meteorological conditions in inland fisheries. Applicable to: this is a general workshop recommendation.
- Exchanges of best practices and lessons learned between targeted sub-regions and non-targeted sub-regions or countries could be beneficial. Applicable to: for example, the GEF-funded BCLME project targeting Angola, Namibia and South Africa, could facilitate such exchanges with other coastal SADC countries as well as with the ASCLME project.
- Strengthened communication between scientists, practitioners and policy makers to increase the robustness of the governance system to better respond to change.

#### 5.5.5 Conclusion of the gap analysis

In summary, of the 39 gaps/recommendations identified:

- 12 gaps/recommendations were identified for the area “strengthened governance to address disasters and climate change impacts affecting fisheries and aquaculture”;
- 19 gaps/recommendations were identified in the area of “addressing and reducing underlying risks through prevention and adaptation measures”;
- two gaps/recommendations were identified for “managing effective response and improving preparedness for disasters and climate change”; and
- six gaps/recommendations were identified in for “improved early warning systems and availability of information”.

Importantly, this Chapter provides specific and general suggestions for those considering supporting the development of actions in the area of fisheries/aquaculture and CCA/DRM in Southern and Eastern Africa. Criteria for prioritization of the above actions will vary among players and organizations, but for the purpose of the NFFP and its Component C, a prioritization process is undertaken in Chapter 6.

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<sup>47</sup> A specific example of such research is monitoring pelagic fish stocks. This was identified as an important gap in the workshop by the Small Island Developing States.

## 6 Prioritization process and next steps for NFFP Component C

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### 6.1 Methodology for scoring and ranking gaps/recommendations

Having identified gaps/recommendations with regard to support and actions needed to address CCA and DRM in fisheries and aquaculture, the next step was to rank each gap/recommendation using a scoring system. This was done by considering each gap/recommendation in light of a number criteria relevant to NEPAD/FAO priorities in relation to NFFP Component C. The four criteria used to prioritize the type of support, and the beneficiary of that support, were:

1. benefit – directly or indirectly – identified primary stakeholders and target beneficiaries among fishers, fish farmers and fish workers in coastal and inland water areas, their families and their communities, but also community organizations, local authorities, government organizations and institutions responsible for DRM and CCA and fisheries and aquaculture;
2. prioritize least developed countries (LDCs) and vulnerable groups;
3. take advantage of synergy effects by encouraging collaboration with existing FAO and partner initiatives, programmes and projects; and
4. have potential for significant results and scaling-up possibilities.

Scores of 0, 0.5 or 1 were allocated to each gap/recommendation (now a proposed action) according to whether they corresponded to these criteria. For example, a score of zero suggested no correspondence; a score of 0.5 indicated some or limited correspondence; and a score of 1 was for high or full correspondence. A fuller explanation of the reasoning behind this scoring is presented here:

- **Benefit:** gaps/recommendations that were deemed to have more direct benefits were given a higher score (1) than those deemed only to have indirect benefits (0.5), or no benefits (0).
- **LDCs:** it was assumed that LDCs would be prioritized and that identified vulnerable groups within these countries would be further prioritized. Therefore, if one or more LDCs was deemed suitable for implementation, a higher score (1) was given.
- **Synergy:** potential synergy effects with other FAO projects and other partners (e.g. fisheries bodies and NEPAD) were given a higher score (1).
- **Scaling up:** when it was deemed likely that pilot projects could be identified and be suitable for up-scaling, a higher score (1) was given than if this was not deemed possible.

### 6.2 Result of scoring and ranking

Tables 4 to 7 show the scoring of the gaps/recommendations mentioned in 5.2 to 5.4 according to the categories listed in Chapter 5.5 and against the above four criteria. This scoring and ranking system was used to select priority interventions for the NFFP programme.

**Table 4: Prioritization scoring of gaps and recommendations for area 1 – Strengthened governance to address disasters and climate change impacts affecting fisheries and aquaculture**

| Gap/recommendation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Correspondence with relevant prioritization criteria |      |         |            |       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|------|---------|------------|-------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Benefit                                              | LDCs | Synergy | Scaling up | Total |
| 1.1 Support the inclusion of fisheries and aquaculture in national planning processes and frameworks, taking into consideration community needs, such as in the NAPAs, National Communications, CAADP compacts, PRSPs, DRM policies and plans, UNDAFs, etc. Applicable to: this is primarily applicable to UNDAFs (nine countries) and CAADPs (six countries), where these were identified and/or signed. Notably, whereas the UNDAF was only unidentified for two countries (Seychelles and Somalia), 12 countries had either not signed CAADPs or they were simply not available. With regard to aquaculture, there might be a need for broader inclusion, e.g. also in NAPAs and National Communications because, although the promotion of aquaculture or aquaculture development is quite often listed as a priority action, the vulnerabilities of aquaculture in relation to disaster risks and climate change may need greater consideration. | 0.5                                                  | 1    | 1       | 0.5        | 3     |
| 1.2 Climate proofing of the national fisheries (CAADP) investment plans and providing step-by-step guidance on how to achieve this. Applicable to: countries that have identified that their fisheries are underdeveloped or have potential: Djibouti, Eritrea, Kenya, Mauritius, South Africa (aquaculture potential), Swaziland (aquaculture potential), Tanzania and Zambia; also countries that have identified aquaculture as priority: Burundi, Comoros, Ethiopia, Madagascar, Malawi, Mauritius, Namibia, Tanzania, Uganda and Zambia.                                                                                                                                                                                                                                                                                                                                                                                                         | 0.5                                                  | 1    | 1       | 0.5        | 3     |
| 1.3 Support the inclusion of CCA/DRM or fisheries/aquaculture in existing CCA/DRM or fisheries/aquaculture projects/programmes, as appropriate. Applicable to: with regard to the inclusion of CCA/DRM in existing fisheries/aquaculture projects/programmes, this could be relevant for the Strategic Action Program Development for the Lake Victoria Basin. With regard to the inclusion of fisheries/aquaculture in existing CCA/DRM projects/programmes, this could be relevant for Africa Climate Change Resilience Alliance (ACCRA), Great Lakes Centre for Culture, Peace and Development (GLCPD) and the Regional Climate Change Programme (see Annex 7.7).                                                                                                                                                                                                                                                                                  | 0.5                                                  | 1    | 1       | 0.5        | 3     |
| 1.4 Enhance collaboration between RECs and RFBs on fisheries/aquaculture and CCA/DRM-related policy formulation and establish procedures for information sharing and transboundary information sharing protocols, as required. Applicable to: all the RECs (EAC, IOC and SADC) identified fisheries and aquaculture as important/of potential and actions to address vulnerabilities were proposed. However, none of the RFBs prioritized CCA or DRM. Therefore, this is broadly applicable to all, but owing to the nature of the RFBs it may be appropriate to focus on those not dealing with offshore resources, namely CIFA and SWIOFC.                                                                                                                                                                                                                                                                                                          | 0.5                                                  | 1    | 1       | 0.5        | 3     |
| 1.5 Support the inclusion of fisheries and aquaculture in regional DRM and DRR policy and planning processes and frameworks. Applicable to: African Regional Strategy for DRR.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0.5                                                  | 1    | 1       | 0.5        | 3     |
| 1.6 Develop a framework of action or policy as a new instrument with the goal of reducing vulnerability of small-scale fisheries communities to natural disasters and climate change, with a series of principles to guide future actions, including emergency response. Applicable to: this recommendation is of an organizational nature (FAO, NEPAD, etc.).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0.5                                                  | 1    | 1       | 0.5        | 3     |
| 1.7 Support opportunities for improved policy coherence and coordination of DRM and CCA initiatives in fisheries and aquaculture at all levels including, for example, the establishment of a working group on climate change and disasters in fisheries and aquaculture within NEPAD; the preparation of joint actions such as policy briefs on climate change, disasters and crises to inform CAMFA; and support to the implementation of the relevant principles relating to disaster and climate change included in the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries (under development). Applicable to: this recommendation is of an organizational nature (FAO, NEPAD, etc.).                                                                                                                                                                                                                                            | 0.5                                                  | 1    | 1       | 1          | 3.5   |

| Gap/recommendation                                                                                                                                                                                                                                                                                                                                                                                                                                         | Correspondence with relevant prioritization criteria |      |         |            |       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|------|---------|------------|-------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Benefit                                              | LDCs | Synergy | Scaling up | Total |
| 1.8 Build capacity to respond to the socioeconomic impacts of climate change by developing governance and coordination between relevant government departments and facilitating policy integration. Applicable to: it is anticipated that most countries would benefit from greater coordination.                                                                                                                                                          | 0.5                                                  | 1    | 0.5     | 1          | 3     |
| 1.9 Provide support to AUC/NEPAD and their partners, in particular in implementing and adapting the Africa Regional Strategy for Disaster Risk Reduction and its Programme of Action to the fisheries and aquaculture sector. <u>Applicable to:</u> this recommendation is of an organizational nature (FAO, NEPAD, etc.).                                                                                                                                 | 0.5                                                  | 1    | 1       | 0.5        | 3     |
| 1.10 Strengthen and enhance gender-based approaches in fisheries management, climate change and disaster planning through, for example, strengthening FAO and NPCA gender programmes to facilitate appropriate implementation. <u>Applicable to:</u> this recommendation is of an organizational nature (FAO, NEPAD, etc.).                                                                                                                                | 0.5                                                  | 1    | 1       | 1          | 3.5   |
| 1.11 Continued mainstreaming of CCA and DRM policy into fisheries and aquaculture sector, and vice versa.                                                                                                                                                                                                                                                                                                                                                  | 1                                                    | 1    | 0       | 0          | 2     |
| 1.12 Promoting the dissemination of gained experiences and lessons learnt in order for them to feed into national, subregional and regional policies and strategies through, for example, the organization of best practices exchange workshops, co-prepared and organized with RECs and/or RFBs and the development of guidelines and/or other publications. <u>Applicable to:</u> this recommendation is of an organizational nature (FAO, NEPAD, etc.). | 1                                                    | 1    | 1       | 1          | 4     |

**Table 5: Prioritization scoring of gaps and recommendations for area 2 – Addressing and reducing underlying risks through prevention and adaptation measures**

| Gap/recommendation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Correspondence with relevant prioritization criteria |      |         |            |       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|------|---------|------------|-------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Benefit                                              | LDCs | Synergy | Scaling up | Total |
| 2.1 In order to decrease reliance on food relief, some specific support with regard to fisheries and aquaculture may be warranted. In particular, some targeted support for aquaculture development and related CCA/DRM, could be beneficial to this region. Applicable to: this was a regional gap and is generally applicable.                                                                                                                                                                                                                                                       | 1                                                    | 1    | 1       | 0.5        | 3.5   |
| 2.2 Support for the development/promotion of fish farming, including integrated farming, as a means to increase resilience of communities and individuals to risks in general, by diversifying food sources and livelihood options. Applicable to: this appeared to be a gap for seven countries: Burundi, Comoros, Madagascar, Mauritius, Namibia, Uganda and Zambia (i.e. each of these countries identified this as a priority intervention required in one or more of the policy documents reviewed, but no direct project activity was identified that was addressing this need). | 1                                                    | 1    | 1       | 1          | 4     |
| 2.3 Improvement of fish processing practices, including storage capacity and marketing of fish products in order to increase the resilience and overall economic viability of fishing communities. Applicable to: Burundi, Comoros, Eritrea, Mozambique, Sudan, Uganda and Zambia.                                                                                                                                                                                                                                                                                                     | 1                                                    | 1    | 1       | 1          | 4     |
| 2.4 Improving water quality management including controlling erosion, siltation and weeds. Applicable to: Uganda, Sudan, Tanzania and Zambia.                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1                                                    | 1    | 0.5     | 0.5        | 3     |
| 2.5 Increasing productivity in fisheries, to improve communities' socioeconomic status and therefore their ability to deal with change. Applicable to: Djibouti, Kenya and Lesotho.                                                                                                                                                                                                                                                                                                                                                                                                    | 1                                                    | 0.5  | 0.5     | 0.5        | 2.5   |
| 2.6 Introduction of Fish Concentration Mechanisms (FCM) to reduce coastal fishing pressure and risks to fishers. Applicable to: Comoros and Madagascar.                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.5                                                  | 1    | 0       | 0.5        | 2     |
| 2.7 Creating alternative livelihoods/support for income diversification was an issue raised in national priorities, but not reflected in implementation activities. Applicable to: Madagascar and Zambia.                                                                                                                                                                                                                                                                                                                                                                              | 1                                                    | 1    | 0.5     | 1          | 3.5   |
| 2.8 Action against illegal fishing and overfishing is lacking, which reduces the availability of valuable resources to vulnerable communities. Applicable to: Mozambique and Tanzania.                                                                                                                                                                                                                                                                                                                                                                                                 | 1                                                    | 1    | 0.5     | 1          | 3.5   |

| Gap/recommendation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Correspondence with relevant prioritization criteria |      |         |            |       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|------|---------|------------|-------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Benefit                                              | LDCs | Synergy | Scaling up | Total |
| 2.9 Restocking of lakes, rivers and dams to increase productivity of stocks and their resilience to change. Applicable to: Malawi and Zambia.                                                                                                                                                                                                                                                                                                                                                                                      | 0.5                                                  | 1    | 0.5     | 0.5        | 2.5   |
| 2.10 Coral farming to strengthen reefs and increase their resilience to the pressures of a changing climate. Applicable to: Madagascar and Mauritius.                                                                                                                                                                                                                                                                                                                                                                              | 1                                                    | 0.5  | 0.5     | 1          | 3     |
| 2.11 Reduction or prevention of poisoning caused by the consumption of marine resources, by monitoring oceanographic parameters and creating awareness among medical staff. Applicable to: Comoros.                                                                                                                                                                                                                                                                                                                                | 0.5                                                  | 1    | 0.5     | 0.5        | 2.5   |
| 2.12 Promoting approaches such as EAF and EAA, that contribute to reducing the exposure and vulnerability of communities through the development and implementation of management plans that take CCA and DRM needs into account and support implementation. Applicable to: broadly applicable but a logical start could be to begin with the countries involved in the EAF-Nansen project. <sup>48</sup>                                                                                                                          | 0.5                                                  | 1    | 1       | 1          | 3.5   |
| 2.13 Development of livelihood diversification, for example, by supporting commercial integrated aquaculture systems (noted as a gap in the workshop by landlocked countries).                                                                                                                                                                                                                                                                                                                                                     | 1                                                    | 1    | 0.5     | 0.5        | 3     |
| 2.14 Strengthening co-management was identified as a national priority in Djibouti, Eritrea, Madagascar, Malawi and Zambia.                                                                                                                                                                                                                                                                                                                                                                                                        | 1                                                    | 1    | 0.5     | 1          | 3.5   |
| 2.15 Sustainable fisheries management, including improved monitoring, control and surveillance. Applicable to: Eritrea, Sudan, Tanzania and Zambia.                                                                                                                                                                                                                                                                                                                                                                                | 1                                                    | 1    | 1       | 1          | 4     |
| 2.16 Supporting local, national and regional policy linkages and two-way communication through pilot activities for the development and implementation of DRM and CCA plans in a participatory and integrated manner in selected fishing/fish farming communities and countries. Applicable to: 17 of the countries identified vulnerabilities with regard to extreme weather (floods, droughts, heavy rain, etc.) and sea-level rise, and 14 of these proposed specific priority actions aimed at addressing the vulnerabilities. | 1                                                    | 1    | 1       | 1          | 4     |
| 2.17 Establish or strengthen community-based DRM, or link with co-management or community development committees trained in risk assessment, management and communication at different levels. Applicable to: See bullet point above, but the gaps of Section 5.2 also need to be considered.                                                                                                                                                                                                                                      | 1                                                    | 1    | 1       | 1          | 4     |
| 2.18 Supporting implementation of priority actions in national planning where fisheries and aquaculture are mentioned in the NAPAs of LDCs by supporting the development of project identification forms (PIFs) and project documents. Applicable to: 12 <sup>49</sup> countries in terms of fisheries and 8 <sup>50</sup> countries in terms of aquaculture.                                                                                                                                                                      | 0.5                                                  | 1    | 1       | 1          | 3.5   |
| 2.19 In the coastal countries, strengthening integrated coastal zone management, including marine protected areas and mangrove management/conservation, was acknowledged as a gap that had important implications for improving resilience to climate change and disaster impacts. Applicable to: Eritrea, Madagascar, Mauritius, Mozambique and Tanzania.                                                                                                                                                                         | 0.5                                                  | 1    | 0       | 0.5        | 2     |

<sup>48</sup> Relevant member countries: Angola, Comoros, Kenya, Madagascar, Mauritius, Mozambique, Namibia, Seychelles, Somalia, South Africa and Tanzania.

<sup>49</sup> Namely Angola, Comoros, Djibouti, Eritrea, Lesotho, Madagascar, Malawi, Mozambique, Sudan (including South Sudan), Tanzania, Uganda and Zambia.

<sup>50</sup> Namely Burundi, Comoros, Ethiopia, Madagascar, Malawi, Tanzania, Uganda and Zambia.



**Table 6: Prioritization scoring of gaps and recommendations for area 3 – Managing effective response and improving preparedness for disasters and climate change**

| Gap/recommendation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Correspondence with relevant prioritization criteria |      |         |            |       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|------|---------|------------|-------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Benefit                                              | LDCs | Synergy | Scaling up | Total |
| 3.1 Community awareness of, and participation in, risk reduction programmes, was highlighted as a gap in Eritrea and Seychelles.                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1                                                    | 0.5  | 1       | 1          | 3.5   |
| 3.2 Improve collaboration between fisheries administrations and national DRM institutes, with better provision for DRM support in disaster-prone areas, better information flow at all levels and across sectors, capacity building and involvement of fishing communities in national contingency planning. Applicable to: 17 <sup>51</sup> of the countries identified vulnerabilities with regard to extreme weather (floods, droughts, heavy rain, etc.) and sea-level rise and 14 <sup>52</sup> of these proposed specific priority actions aimed at addressing the vulnerabilities. | 0.5                                                  | 1    | 1       | 1          | 3.5   |

**Table 7: Prioritization scoring of gaps and recommendations for area 4 – Improved early warning systems and availability of information**

| Gap/recommendation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Correspondence with relevant prioritization criteria |      |         |            |       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|------|---------|------------|-------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Benefit                                              | LDCs | Synergy | Scaling up | Total |
| 4.1 Monitoring of weather, climate, ocean, lake or ecosystem conditions, including supporting early warning with regard to e.g. floods and droughts, was identified as a primary gap in six countries: Angola, Eritrea, Kenya, Malawi, Mozambique and Tanzania.                                                                                                                                                                                                                                                                                      | 1                                                    | 1    | 1       | 1          | 4     |
| 4.2 Establish early warning systems at local, national and international levels, and training for fishers in safe fishing and navigation practices. Establish a framework for safety at sea, including making safety equipment available on national and local markets. Applicable to: 17 <sup>53</sup> of the countries identified vulnerabilities with regard to extreme weather (floods, droughts, heavy rain, etc.) and sea-level rise and 14 <sup>54</sup> of these proposed specific priority actions aimed at addressing the vulnerabilities. | 1                                                    | 1    | 1       | 1          | 4     |
| 4.3 Build scientific knowledge of the effects and impacts of climate change. This will assist in increasing resilience and taking action against extreme weather events and disasters.                                                                                                                                                                                                                                                                                                                                                               | 1                                                    | 1    | 1       | 0.5        | 3.5   |
| 4.4 Systemic environmental monitoring of water bodies and meteorological conditions in inland fisheries. Applicable to: this is a general workshop recommendation.                                                                                                                                                                                                                                                                                                                                                                                   | 0.5                                                  | 1    | 0.5     | 0.5        | 2.5   |
| 4.5 Exchanges of best practices and lessons learned between targeted sub-regions and non-targeted sub-regions or countries could be beneficial. Applicable to: for example, the GEF-funded BCLME project targeting Angola, Namibia and South Africa, could facilitate such exchanges with other coastal SADC countries and the ASCLME project.                                                                                                                                                                                                       | 0.5                                                  | 0.5  | 1       | 1          | 3     |
| 4.6 Strengthened communication between scientists, practitioners and policy makers so as to increase the robustness of the governance system and better respond to change.                                                                                                                                                                                                                                                                                                                                                                           | 1                                                    | 1    | 1       | 0.5        | 3.5   |

<sup>51</sup> Namely Angola, Burundi, Comoros, Djibouti, Eritrea, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Rwanda, Seychelles, South Africa, Tanzania, Uganda and Zambia.

<sup>52</sup> Namely Angola, Comoros, Eritrea, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Seychelles, South Africa, Sudan (including South Sudan), Tanzania, Uganda and Zambia.

<sup>53</sup> Namely Angola, Burundi, Comoros, Djibouti, Eritrea, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Rwanda, Seychelles, South Africa, Tanzania, Uganda and Zambia.

<sup>54</sup> Namely Angola, Comoros, Eritrea, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Seychelles, South Africa, Sudan (including South Sudan), Tanzania, Uganda and Zambia.

### 6.3 Prioritization process

Based on the scoring in the tables above, the gaps/recommendations which scored the highest (either a four or three-and-a-half) with regard to the criteria for NFFP Component C are listed below. However, the final decision about which priorities to incorporate into the NFFP Component C, will also depend on factors such as budget and time frame:

- Support with regard to development/promotion of fish farming, including integrated farming, as a means to increase resilience of communities and individuals to risks in general, by diversifying food sources and livelihood options. Applicable to: this appeared to be a gap for seven countries: Burundi, Comoros, Madagascar, Mauritius, Namibia, Uganda and Zambia (i.e. each of these countries had identified this as a priority intervention required in one or more of the policy documents reviewed, but no direct project activity was identified that was addressing this need). Scoring 4.
- Improvement of fish processing practices, including storage capacity and marketing of fish products in order to increase resilience and overall economic viability. Applicable to: Burundi, Comoros, Eritrea, Mozambique, Sudan, Uganda and Zambia. Scoring 4.
- Sustainable fisheries management, including reducing risk of overfishing through improved monitoring, control and surveillance (MCS), to reduce vulnerability to the impacts of climate change and disasters. Applicable to: Djibouti, Eritrea, Sudan, Tanzania and Zambia. Scoring 4.
- Supporting local, national and regional policy linkages and two-way communication through pilot activities for the development and implementation of DRM and CCA plans in a participatory and integrated manner in selected fishing/fish farming communities and countries. Applicable to: 17<sup>55</sup> of the countries identified vulnerabilities with regard to extreme weather (floods, droughts, heavy rain, etc.) and sea-level rise, and 14<sup>56</sup> of these proposed specific priority actions aimed at addressing the vulnerabilities. Scoring 4.
- Establish community-based DRM, or link with co-management or community development committees trained in risk assessment, management and communication at different levels. Applicable to: See bullet point above; however, the gaps of Section 5.2 also need to be considered. Scoring 4.
- Monitoring of weather, climate, ocean, lake or ecosystem conditions, including supporting early warning with regard to e.g. floods and droughts. Applicable to: Angola, Eritrea, Kenya, Malawi, Mozambique and Tanzania. Scoring 4.
- Establish early warning systems at local, national and international levels, and training for fishers in safe fishing and navigation practices. Establish a framework for safety at sea including making safety equipment available on national and local markets. Applicable to: 17<sup>57</sup> of the countries identified vulnerabilities with regard to extreme weather (floods, droughts, heavy rain, etc.) and sea-level rise and 14<sup>58</sup> of these proposed specific priority actions aimed at addressing the vulnerabilities.
- Supporting opportunities for improved policy coherence and coordination of DRM and CCA initiatives in fisheries and aquaculture at all levels including, for example, the establishment of a

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<sup>55</sup> Namely Angola, Burundi, Comoros, Djibouti, Eritrea, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Rwanda, Seychelles, South Africa, Tanzania, Uganda and Zambia.

<sup>56</sup> Namely Angola, Comoros, Eritrea, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Seychelles, South Africa, Sudan (including South Sudan), Tanzania, Uganda and Zambia.

<sup>57</sup> Namely Angola, Burundi, Comoros, Djibouti, Eritrea, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Rwanda, Seychelles, South Africa, Tanzania, Uganda and Zambia.

<sup>58</sup> Namely Angola, Comoros, Eritrea, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Seychelles, South Africa, Sudan (including South Sudan), Tanzania, Uganda and Zambia.

working group on climate change and disasters in fisheries and aquaculture within NEPAD; the preparation of joint actions such as policy briefs on climate change, disasters and crises to inform CAMFA. Applicable to: this recommendation is of an organizational nature (FAO, NEPAD, etc.). Scoring 3.5.

- Strengthen and enhance gender-based approaches in fisheries management, climate change and disaster planning through, for example, strengthening the coherence between FAO and NPCA gender programmes to facilitate appropriate implementation. Applicable to: this recommendation is of an organizational nature (FAO, NEPAD, etc.). Scoring 3.5.
- In order to decrease reliance on food relief, some specific support with regard to fisheries and aquaculture may be warranted. In particular, some targeted support to aquaculture development and related CCA/DRM in this region could be beneficial. Applicable to: this was a regional gap and it is generally applicable. Scoring 3.5.
- Creating alternative livelihoods/support for income diversification was an issue raised in national priorities, but not reflected in implementation activities. Applicable to: Madagascar and Zambia. Scoring 3.5.
- Action against illegal and overfishing (which reduces the availability of valuable resources to vulnerable communities) is lacking. Applicable to: Mozambique and Tanzania. Scoring 3.5.
- Promoting approaches and practices such as EAF and EAA, which contribute to reducing the exposure and vulnerability of communities by developing and implementing management plans that take into account CCA and DRM needs and support implementation. Applicable to: broadly applicable but it may be logical to start with the countries involved in the EAF-Nansen project<sup>59</sup>. Scoring 3.5.
- Strengthening co-management as a national priority as a means to engage communities in processes and preparation. Applicable to: Djibouti, Eritrea, Madagascar, Malawi and Zambia. Scoring 3.5.
- Supporting implementation of priority actions in national planning where fisheries and aquaculture are mentioned, in the NAPAs of LDCs by supporting development of project identification forms (PIFs). Applicable to: 12<sup>60</sup> countries in terms of fisheries and 8<sup>61</sup> countries in terms of aquaculture. Scoring 3.5.
- Community awareness through, and participation in, risk reduction programmes. Applicable to: Eritrea and Seychelles. Scoring 3.5.
- Strengthened communication between scientists, practitioners and policy makers so as to increase the robustness of the governance system and better respond to change. Scoring 3.5.
- Build scientific knowledge in regard to the effects and impacts of climate change. This will assist in building resilience and taking action against extreme weather events and disasters<sup>62</sup>. Scoring 3.5.
- Improve collaboration between fisheries administrations and national DRM institutes, with better provision for DRM support in disaster-prone areas, better information flow at all levels and across sectors, capacity building and involvement of fishing communities in national

<sup>59</sup> Relevant member countries: Angola, Comoros, Kenya, Madagascar, Mauritius, Mozambique, Namibia, Seychelles, Somalia, South Africa and Tanzania.

<sup>60</sup> Namely Angola, Comoros, Djibouti, Eritrea, Lesotho, Madagascar, Malawi, Mozambique, Sudan (including South Sudan), Tanzania, Uganda and Zambia.

<sup>61</sup> Namely Burundi, Comoros, Ethiopia, Madagascar, Malawi, Tanzania, Uganda and Zambia.

<sup>62</sup> A specific example of such research is monitoring pelagic fish stocks. This was identified as an important gap in the workshop by the Small Island Developing States.

contingency planning. Applicable to: 17<sup>63</sup> of the countries identified vulnerabilities with regard to extreme weather (floods, droughts, heavy rain, etc.) and sea-level rise and 14<sup>64</sup> of these proposed specific priority actions aimed at addressing the vulnerabilities. Scoring 3.5.

#### **6.4 Next steps**

The next steps for NFFP Component C are to decide on a preferred prioritization approach and then develop a work plan based on addressing the resulting gaps/recommendations. The findings of this gap analysis and the companion gap analysis for Western and Central Africa could be used to inform the on-going CAMFA process. It will also provide valuable insights that may be useful in the formulation of the Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa.

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<sup>63</sup> Namely Angola, Burundi, Comoros, Djibouti, Eritrea, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Rwanda, Seychelles, South Africa, Tanzania, Uganda and Zambia.

<sup>64</sup> Namely Angola, Comoros, Eritrea, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Seychelles, South Africa, Sudan (including South Sudan), Tanzania, Uganda and Zambia.

## 7 Annexes

### 7.1 African, regional and subregional bodies considered in the analysis and documents identified

The following integration bodies were considered to be relevant to fisheries and aquaculture or CCA and DRM in the Southern and Eastern African region. Each organization was contacted and their websites searched to identify relevant policies, strategies or frameworks related to fisheries and aquaculture or CCA and DRM. The results are given below by category of integration body.

#### 7.1.1 African

1. **African Union (AU)** – all AU member states:
  - a. Record of the Conference of the Ministers of Fisheries and Aquaculture (CAMFA) (2010)
  - b. African Regional Strategy for Disaster Risk Reduction (2004)
2. **New Partnership for Africa's Development (NEPAD)** – all AU member states:
  - a. NEPAD Action Plan for the Development of African Fisheries and Aquaculture (2004)
  - b. NEPAD Agency Environmental Action Plan (2003)

#### 7.1.2 Regional Economic Communities<sup>65</sup>

1. **East African Community (EAC)** – Burundi, Kenya, Rwanda, Uganda and United Republic of Tanzania:
  - a. Food Security Plan (2011)
2. **Indian Ocean Commission (IOC)** – Comoros, Madagascar, Mauritius and Seychelles:
  - a. Framework for the Regional Climate Change Adaptation Strategy of the IOC Member States (2012)
3. **Southern African Development Community (SADC)** – Angola, Botswana, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, United Republic of Tanzania, Zambia and Zimbabwe:
  - a. SADC Protocol of Fisheries (2001)
  - b. Southern Africa Sub-Regional Framework of Climate Change Programmes (2010)

#### 7.1.3 Large Marine Ecosystems and shared water bodies

1. **Agulhas and Somali Current Large Marine Ecosystems (ASCLME) project** – Comoros, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, Somalia, South Africa and United Republic of Tanzania:
  - a. ASCLME Project Document (2010)<sup>66</sup>
2. **Benguela Current Commission (BCC)** – Angola, Namibia and South Africa:
  - a. BCLME Strategic Action Programme (SAP) (2002)
3. **Lake Malawi Basin Commission** – Malawi, Mozambique and United Republic of Tanzania:
  - a. No relevant documents found
4. **Lake Tanganyika Authority (LTA)** – Burundi, United Republic of Tanzania and Zambia:
  - a. The Strategic Action Programme (SAP) for the Sustainable Management of Lake Tanganyika (2000)

<sup>65</sup> Only member states relevant to the sub-regions study area of this project are listed.

<sup>66</sup> ASCLME SAP is still under development.

5. **Lake Victoria Basin Commission (LVBC)** – Burundi, Kenya, Rwanda, Uganda and United Republic of Tanzania:
  - a. Protocol for Sustainable Development of the Lake Victoria Basin (2002)
6. **Lake Victoria Fisheries Organization (LVFO)** – Burundi, Kenya, Rwanda, Uganda and United Republic of Tanzania:
  - a. No relevant documents found
7. **Permanent Okavango River Basin Water Commission (OKACOM)** – Angola, Botswana and Namibia:
  - a. National Action Plans [individual plan for each member state (2011)<sup>67</sup>]
8. **Zambezi Watercourse Commission (ZAMCOM)** – Angola, Botswana, Malawi, Mozambique, Namibia, United Republic of Tanzania, Zambia and Zimbabwe:
  - a. No relevant documents found<sup>68</sup>

#### 7.1.4 Regional Fisheries Bodies

1. **Committee for Inland Fisheries and Aquaculture of Africa (CIFA)** – Botswana, Burundi, Republic of Congo, Eritrea, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Rwanda, Swaziland, United Rep. of Tanzania, Uganda, Zambia and Zimbabwe:
  - a. No relevant documents found
2. **Indian Ocean Tuna Commission (IOTC)** – Comoros, Eritrea, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, Sudan and United Republic of Tanzania:
  - a. No relevant documents found
3. **South East Atlantic Fisheries Organization (SEAFO)** – Angola, Namibia and South Africa:
  - a. No relevant documents found
4. **South Indian Ocean Fisheries Agreement (SIOFA)** – Mauritius and Seychelles:
  - a. No relevant documents found
5. **South West Indian Ocean Fisheries Commission (SWIOFC)** – Comoros, Kenya, Madagascar, Maldives, Mauritius, Mozambique, Seychelles, Somalia, South Africa and United Republic of Tanzania:
  - a. No relevant documents found

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<sup>67</sup> The OKACOM SAP is still in development.

<sup>68</sup> The Zambezi Riparian States established the Interim ZAMCOM Secretariat (IZS) in May 2011. The IZS's major role is to work with riparian states to begin the process of implementing the ZAMCOM agreement and establish its requisite organs, including a permanent Secretariat.

## 7.2 Regional priorities in fisheries and aquaculture in respect to climate change and disasters

The table below summarizes the integration of fisheries and aquaculture in respect to disasters and climate change on a subregional level, based on frameworks and strategies of relevant institutions and organizations. These include: Regional Economic Communities (RECs), Large Marine Ecosystems (LMEs) and NEPAD. The methodology employed for summarizing the national priorities was adopted for the purpose of considering how well integrated fisheries and aquaculture is at the regional level.

Key: Grey boxes indicate that the criteria were met for that document.

|                                                                 | Pan-African                |                                          |                                        |                                                                                   | RECs                          |                                                |                                   |                                                                                 | Shared water bodies and RFBs   |                  |                |                                                 | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------|----------------------------|------------------------------------------|----------------------------------------|-----------------------------------------------------------------------------------|-------------------------------|------------------------------------------------|-----------------------------------|---------------------------------------------------------------------------------|--------------------------------|------------------|----------------|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                 | Record of the CAMFA (2010) | African Regional Strategy for DRR (2004) | NEPAD Environmental Action Plan (2003) | NEPAD Action Plan for the Development of African Fisheries and Aquaculture (2005) | EAC Food Security Plan (2011) | IOC Framework for Regional CCA Strategy (2012) | SADC Protocol on Fisheries (2001) | SADC Southern Africa Sub-Regional Framework of Climate Change Programmes (2010) | ASCLME Project Document (2008) | BCIME SAP (2002) | LTA SAP (2000) | LVB Protocol for Sustainable Development (1999) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Importance of sector noted</b>                               |                            |                                          |                                        |                                                                                   |                               |                                                |                                   |                                                                                 |                                |                  |                |                                                 | <ul style="list-style-type: none"> <li>This criterion covered well because fisheries and aquaculture (often included in the agriculture sector as a whole, or from an environmental perspective) are a central concern for most of the documents reviewed.</li> </ul>                                                                                                                                                                                                               |
| <b>Specific vulnerabilities identified</b>                      |                            |                                          |                                        |                                                                                   |                               |                                                |                                   |                                                                                 |                                |                  |                |                                                 | <ul style="list-style-type: none"> <li>Many documents did not cover CCA or DRM, so specific vulnerabilities of the fisheries were not discussed.</li> </ul>                                                                                                                                                                                                                                                                                                                         |
| <b>Women/vulnerable groups identified</b>                       |                            |                                          |                                        |                                                                                   |                               |                                                |                                   |                                                                                 |                                |                  |                |                                                 | <ul style="list-style-type: none"> <li>This criterion was not relevant in the context of many of the documents.</li> <li>The EAC Food Security Plan dealt with this extensively, because women dominate agricultural production in this region.</li> </ul>                                                                                                                                                                                                                          |
| <b>Specific actions proposed to address the vulnerabilities</b> |                            |                                          |                                        |                                                                                   |                               |                                                |                                   |                                                                                 |                                |                  |                |                                                 | <ul style="list-style-type: none"> <li>Actions suggested included: carrying out more research into the mechanisms of climate change and effects and impacts regionally; improving capacity for emergency preparedness; strengthening community resilience to climate change impacts through support for income generating activities; and raising awareness on climate change adaptation within local communities.</li> <li>Mainstreaming climate change into fisheries.</li> </ul> |

### 7.3 National priorities in fisheries and aquaculture in respect to climate change and disasters

This section contains summaries of the mapping of national priorities for fisheries and aquaculture in respect to disasters and climate change.

*Key:* Orange boxes indicate that the criteria were met for that document, while more lightly shaded boxes in the header column indicate that the document was not reviewed, as explained in footnotes.

#### 7.3.1 Angola (LDC)

| Criteria                                                                | NAPA | NC | PRSP | UNDAF | CAADP | Review 2011 | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------|------|----|------|-------|-------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Importance of sector noted</b>                                       |      |    |      |       |       |             | <ul style="list-style-type: none"> <li>○ The rural sector, which includes farming, forestry and fisheries activities, is the second largest productive sector in the country.</li> <li>○ Fisheries are one of the main economic activities in Angola, contributing around 7.8% of GDP.</li> <li>○ Around 50% of the population lives along the coast: approximately 50 000 people are dependent on traditional fishing.</li> <li>○ Angola is one of the most important centres of marine biodiversity and has one of the most productive fisheries resources in the world.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Specific vulnerabilities identified (of relevance to the sector)</b> |      |    |      |       |       |             | <ul style="list-style-type: none"> <li>○ Changes to river hydrography, flow rates, or water temperature may have implications for river and lake fisheries, as well as coastal ecosystems.</li> <li>○ The most probable effects of climate change on the system north of the city of Benguela is an alteration in the frequency and amplitude of tropical intrusions; modifications in wind and currents; changes to wind stresses and in the intensity of coastal seepage; and a gradual rise in sea surface temperature and sea level.</li> <li>○ Climate change has the potential to influence the geographic location, the diversity of species and the functionality of ecosystems, which can occur so quickly that the ecosystems are not able to adapt.</li> <li>○ Concerns relate to sedimentation, pollution and over-exploitation of resources; the use of unsuitable fishing practices; oil exploration and production; construction activity and the exploitation of minerals.</li> <li>○ Coastal infrastructure, settlements, road networks and port authorities will also likely be impacted by increased floods and sea level rise.</li> </ul> |
| <b>Women/vulnerable groups identified</b>                               |      |    |      |       |       |             | <ul style="list-style-type: none"> <li>○ The most vulnerable sectors are agriculture and fisheries.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Specific actions proposed to address the vulnerabilities</b>         |      |    |      |       |       |             | <ul style="list-style-type: none"> <li>○ Monitor the weather, climate and oceanographic conditions; enlarge and expand the network of meteorological stations.</li> <li>○ Study the causes of fishing scarcities that have worsened in the last ten years and study the vulnerability of fishing activities in relation to modifications of climate and currents.</li> <li>○ Disaster risk management and coastal zone management, as well as efforts to address vulnerability to climate change in the smallholder agriculture sector.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |



### 7.3.2 Botswana (not LDC)

| Criteria                                                                | NAPA <sup>69</sup> | NC | PRSP <sup>70</sup> | UNDAF | CAADP <sup>71</sup> | Review<br>w<br>2011 | Summary |
|-------------------------------------------------------------------------|--------------------|----|--------------------|-------|---------------------|---------------------|---------|
| <i>Importance of sector noted</i>                                       |                    |    |                    |       |                     |                     |         |
| <i>Specific vulnerabilities identified (of relevance to the sector)</i> |                    |    |                    |       |                     |                     |         |
| <i>Women/vulnerable groups identified</i>                               |                    |    |                    |       |                     |                     |         |
| <i>Specific actions proposed to address the vulnerabilities</i>         |                    |    |                    |       |                     |                     |         |

<sup>69</sup> Not a LDC.

<sup>70</sup> Not available/does not exist?

<sup>71</sup> Unsigned.

### 7.3.3 Burundi (LDC)

| Criteria                                                                | NAPA | NC | PRSP | UNDAF | CAADP | Review 2011 | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------|------|----|------|-------|-------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Importance of sector noted</b>                                       |      |    |      |       |       |             | <ul style="list-style-type: none"> <li>○ The country's hydrological system is defined by two large catchment areas: the Nile basin and the Congo River basin.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Specific vulnerabilities identified (of relevance to the sector)</b> |      |    |      |       |       |             | <ul style="list-style-type: none"> <li>○ Main vulnerabilities include: drought; general water temperature rise (which may cause eutrophication and increased evaporation affecting both fisheries and aquaculture); proliferation of floating aquatic plants (water hyacinth in particular) owing to reduced flow of surface water, temperature change and deterioration of water quality; unsuitable fishing gear used in the artisanal sector; and deforestation and soil erosion.</li> <li>○ However, rising lake levels and the extension of coastal plains may cause nutrient enrichment and positively contribute to fish reproduction and growth.</li> </ul> |
| <b>Women/vulnerable groups identified</b>                               |      |    |      |       |       |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Specific actions proposed to address the vulnerabilities</b>         |      |    |      |       |       |             | <ul style="list-style-type: none"> <li>○ Potential adaptation actions include: development of integrated farming systems, including fish, poultry, pigs, etc.; promotion of fish farming; and improvement of fish processing practices, including strengthening of community storage capacity and marketing of fisheries products.</li> </ul>                                                                                                                                                                                                                                                                                                                       |

### 7.3.4 Comoros (LDC)

| Criteria                                                                | NAPA | NC | PRSP | UNDAF | CAADP <sup>72</sup> | Review 2011 | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------|------|----|------|-------|---------------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Importance of sector noted</b>                                       |      |    |      |       |                     |             | <ul style="list-style-type: none"> <li>○ Fishing in the Comoros is not on an industrial scale but it contributes to poverty reduction and generates income for the least advantaged families. Agriculture, fisheries and tourism are recognized as key growth sectors. There is major fisheries potential but coastal areas are overexploited while offshore resources remain largely underexploited.</li> <li>○ The majority of the inhabitants of the Comoros depend on subsistence agriculture and fishing for their livelihoods. There are about 8 000 fishers in total.</li> <li>○ Although fish is an important source of animal protein – contributing a major portion of domestic protein consumption – the population's average protein intake is still below accepted standards.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Specific vulnerabilities identified (of relevance to the sector)</b> |      |    |      |       |                     |             | <ul style="list-style-type: none"> <li>○ Expected climate impacts: sea level rise; increase in ocean temperatures (affecting coral reefs); increase in frequency of storms and cyclones (making fishing more dangerous); rise in air temperature (resulting in increased loss of captured fish owing to a lack of preservation/storage facilities such as ice); potential displacement of 10% of the coastal population; contamination of coastal aquifers by sea water; increase in food poisoning (increased water temperature leads to coral death, which in turn leads to the growth of toxic algae, which can lead to poisoning of seafood consumers); loss of coastal infrastructure; and coastal erosion (e.g. caused by degraded coral reefs).</li> <li>○ Degradation of mangroves, reefs and seagrass beds, and the discarding of household waste causing eutrophication in the sea, exacerbate the effects of climate change.</li> <li>○ Coral bleaching and other degradation is of importance because the livelihoods of nearly 7% of the population depend on reef fish. Most fishing is reef-based.</li> <li>○ Other vulnerabilities include: lack of data and information on resources; legislation and a development plan for the sector are not yet in place; lack of tools for sector assessment (database, research); lack of safety measures for fishers out at sea; lack of alternative sources of employment; overfishing of coastal resources; and highly variable prices, depending on the season.</li> </ul> |
| <b>Women/vulnerable groups identified</b>                               |      |    |      |       |                     |             | <ul style="list-style-type: none"> <li>○ Self-employed farmers, fishers and small traders have been identified as the most vulnerable in Comoros.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Specific actions proposed to address the vulnerabilities</b>         |      |    |      |       |                     |             | <ul style="list-style-type: none"> <li>○ The fisheries sector has been identified as one that lacks adaptation actions.</li> <li>○ Proposed adaptation actions include: introduction of Fish Concentration Mechanisms (FCM) to reduce fishing pressure on the coast and reduce risk to fishers at sea; improve preservation of fish and seafood products (including refrigeration) to reduce or avoid deterioration of catches and improve distribution; equipping small boats with engines; reduction/prevention of poisoning by consumption of toxic seafood by monitoring oceanographic parameters, particularly the reefs, and creating awareness among medical staff; promoting sustainable management of fish farming; establishing co-management; and adoption of integrated coastal zone management.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

<sup>72</sup> Unsigned.

### 7.3.5 Djibouti (LDC)

| Criteria                                                                | NAPA | NC | PRSP | UNDAF <sup>73</sup> | CAADP <sup>74</sup> | Review 2011 | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------|------|----|------|---------------------|---------------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Importance of sector noted</b>                                       |      |    |      |                     |                     |             | <ul style="list-style-type: none"> <li>○ Djibouti has a 372 km coastline that offers significant fisheries potential (48 000 tonnes). However, fish consumption is low (1.5kg/person/year) and fishers and women who live off traditional fishing continue to be among the poorest of the population.</li> <li>○ Potential new sources of growth are: tourism, manufacturing, fishing, livestock and geothermal energy. The fisheries sector has important economic potential. It could become a major foreign exchange earner if its high-value fish can be directed towards profitable markets. The sector could help fight poverty through creation of revenue-generating activities and it could also improve food security, although this would require an adjustment of dietary habits.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Specific vulnerabilities identified (of relevance to the sector)</b> |      |    |      |                     |                     |             | <ul style="list-style-type: none"> <li>○ Djibouti is a resource scarce country and is prone to a number of natural hazards, including multi-year droughts and frequent flash floods. Likely climatic changes include: increase in temperature and sea level; scarcity of rainfall; saltwater intrusion; and disruption of upwelling.</li> <li>○ 85% of the population live in the coastal areas and many of Djibouti's coastal developments, including the capital city, are vulnerable to hurricanes, cyclones and flooding. Many developments are located below sea level.</li> <li>○ Other factors contributing to increasing vulnerability include: siltation and sedimentation; environmental degradation; coral reef and mangrove degradation; expanding coastal developments. These are all inter-related.</li> <li>○ The fisheries sector's stagnation is as a result of: ineffective implementation of support measures; lack of equipment and maintenance of infrastructure; fishers' illiteracy because this hinders the organization of fishing communities; absence of a decentralized finance system for the purchase of fishing equipment and supplies; lack of fish processing; lack of access to technical innovations; ineffective distribution network due to a lack of refrigerated transportation (and low demand for fish).</li> </ul> |
| <b>Women/vulnerable groups identified</b>                               |      |    |      |                     |                     |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Specific actions proposed to address the vulnerabilities</b>         |      |    |      |                     |                     |             | <ul style="list-style-type: none"> <li>○ Sustainable management of marine resources is expected to be implemented through the development and implementation of a master fishing development plan; development of a co-management system; strengthening of the institutional capabilities of the marine sector; and rehabilitation and strengthening of production.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

<sup>73</sup> The sector was mentioned, but without specifics.

<sup>74</sup> Document unavailable.

### 7.3.6 Eritrea (LDC)

| Criteria                                                                | NAPA | NC | PRSP | UNDAF | CAADP <sup>75</sup> | Review 2011 | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------|------|----|------|-------|---------------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Importance of sector noted</b>                                       |      |    |      |       |                     |             | <ul style="list-style-type: none"> <li>Marine and coastal resources, particularly fisheries, are recognized as important and have the potential to play a crucial role in the economic development of the country. Eritrea has the potential to sustainably harvest around 70 000 metric tonnes of fish annually, but currently the catch is only around 13 000 tonnes per year. The fisheries of Eritrea are unusual because they are still relatively healthy and in some cases underexploited.</li> <li>Natural resources management will be an integral part of addressing food insecurity.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Specific vulnerabilities identified (of relevance to the sector)</b> |      |    |      |       |                     |             | <ul style="list-style-type: none"> <li>Temperature increases, reduced precipitation, chronic drought, flash flooding, heat stress, El Niño effects, and sea level rise are expected to adversely affect food security as well as wildlife, coastal resources and fragile ecosystems (including coral reefs, mangroves and seagrass beds).</li> <li>Temperature increase also causes toxic algal blooms (such as red tide) that threaten the shellfish population through lethal and chronic impacts.</li> <li>Other factors that contribute to vulnerability include: the use of small mesh nets by many fishers, either due to inadequate control or a lack of alternative options; and timber extraction for various purposes. Harvesting of wood for fuel, construction of boats and over-browsing by camels are the main causes of mangrove degradation.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Women/vulnerable groups identified</b>                               |      |    |      |       |                     |             | <ul style="list-style-type: none"> <li>The most vulnerable groups are those that depend on natural resources for their livelihoods, including rural dwellers, subsistence farmers, the urban poor, pastoralists, fishers and island residents. Those citizens most likely to be affected are also those least able to cope, including artisanal fishers and island inhabitants. Women, children and elderly people are particularly vulnerable.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Specific actions proposed to address the vulnerabilities</b>         |      |    |      |       |                     |             | <ul style="list-style-type: none"> <li>Identified adaptation actions include: strengthening integrated coastal area management (ICAM) practices; establishing a comprehensive ecological, oceanographic and meteorological information system to support an adaptive strategy for coastal areas; implement a management programme for mangroves; introduction of marine and coastal protected areas; relocation of island inhabitants; and community awareness programmes on climate change and adaptation options.</li> <li>Other relevant actions include: improving fisheries infrastructure (e.g. cold water facilities, water desalination service, electric supply, flake ice machine, etc.), including strengthening the storage and processing capacity of fisheries cooperatives; strengthening artisanal fishers' cooperatives by providing technical assistance for marketing, distribution, etc.; strengthen resource management and planning, including conducting fisheries assessments and expanding the current resource and fisheries monitoring program; establishing an area-based co-management system between the Ministry of Fisheries and the cooperatives; assisting cooperatives to establish fully protected marine reserves; and increasing license fees for foreign fishers in conjunction with increased surveillance and enforcement.</li> </ul> |

<sup>75</sup> Not available/does not exist?

### 7.3.7 Ethiopia (LDC)

| Criteria                                                                | NAPA | NC | PRSP <sup>76</sup> | UNDAF | CAADP | Review 2011 | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------|------|----|--------------------|-------|-------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Importance of sector noted</b>                                       |      |    |                    |       |       |             | <ul style="list-style-type: none"> <li>○ Agriculture, which includes crop production, livestock farming, forestry, fisheries and apiculture remains by far the most important economic sector in the country because it directly supports about 85% of the population in terms of employment and livelihood; contributes about 50% of the country's gross domestic product (GDP); generates about 90% of export earnings; and supplies around 70% of the raw material requirements of agro-based domestic industries.</li> <li>○ Agriculture is also the major source of food for the population of the nation and hence the prime contributing sector to food security.</li> </ul> |
| <b>Specific vulnerabilities identified (of relevance to the sector)</b> |      |    |                    |       |       |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Women/vulnerable groups identified</b>                               |      |    |                    |       |       |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Specific actions proposed to address the vulnerabilities</b>         |      |    |                    |       |       |             | <ul style="list-style-type: none"> <li>○ The NAPA mentions two relevant actions: 1) Aquaculture development for efficient harvest of commercial spirulina species in the lakes of the Ethiopian Rift Valley system; and 2) Realizing food security through a multi-purpose large-scale water development project in Genale–Dawa Basin.</li> <li>○ Among the NAPA objectives is to increase the availability of water for livestock, crop irrigation, aquaculture, energy, rural industry and domestic use.</li> </ul>                                                                                                                                                               |

<sup>76</sup> The sector is mentioned, but without specifics.

### 7.3.8 Kenya (not LDC)

| Criteria                                                                | NAPA <sup>77</sup> | NC | PRSP | UNDAF | CAADP | Review 2011 <sup>78</sup> | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------|--------------------|----|------|-------|-------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Importance of sector noted</b>                                       |                    |    |      |       |       |                           | <ul style="list-style-type: none"> <li>○ Fisheries activities are pivotal to the household economies of riparian communities. The bulk of the country's fisheries resources come from Lake Victoria, while the coastal resources contribute significantly to the national economy, mainly through tourism. Aquaculture, though concentrated in the Lake Victoria basin and Central Province, significantly supplements capture fisheries.</li> <li>○ The fishery sector contributes fluctuating revenue of Kshs 5 to 6 billion annually, corresponding to about 1.5% of GNP.</li> <li>○ Fresh water and marine fisheries have significant potential for improving the livelihoods of communities in the western and coastal regions of Kenya and they are a source of foreign exchange earnings.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Specific vulnerabilities identified (of relevance to the sector)</b> |                    |    |      |       |       |                           | <ul style="list-style-type: none"> <li>○ Increases in temperature would exacerbate the situation in polluted water bodies by increasing oxygen consuming biological activities and decreasing the saturation concentration of dissolved oxygen. Exposure of egg, larvae, phytoplankton, zooplankton, corals and other organisms to UV, as a result of increased temperature, could cause abnormalities (e.g. expulsion of zooxanthellae leading to bleaching of the corals) or even deaths, thereby indirectly affecting fisheries.</li> <li>○ The expected scenario of 1 m sea level rise by 2100 is bound to inundate low lying coastal areas. These low lying areas are covered by mangroves, sea grass beds and coral reefs which serve as feeding, breeding and nursery grounds for most marine fish communities, besides functioning as sinks and sediment traps.</li> <li>○ Coastal erosion impacts include degradation of mangrove forests, sea grass beds and coral reefs. Tourism development, salt pan constructions and poorly planned and managed aquaculture activities, only compound coastal erosion impacts.</li> <li>○ The estuarine fisheries (especially the shrimp fishery) are the most vulnerable to sea level rise.</li> <li>○ Changes in ocean circulation, as a result of climate change, are expected to lead to a loss of certain fish populations and the establishment of new ones, besides other impacts. Temperature change may also result in changes in upwelling patterns which might impact on fish spawning periods and the survival of larvae.</li> <li>○ Anthropogenic impacts, such as fishing effort, sand mining, mangrove deforestation, tourism, etc., could exacerbate the impact of climate change on aquatic resources.</li> </ul> |
| <b>Women/vulnerable groups identified</b>                               |                    |    |      |       |       |                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Specific actions proposed to address the vulnerabilities</b>         |                    |    |      |       |       |                           | <ul style="list-style-type: none"> <li>○ Actions proposed mainly relate to research, ecosystem monitoring and protection, as well as fisheries management. Another proposal is for early warning systems for droughts and floods.</li> <li>○ The national CAADP compact notes that overall development and growth of the agricultural sector depend on increasing productivity and commercialization of fisheries (among other sub-sectors).</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

<sup>77</sup> Not an LDC.

<sup>78</sup> The sector is mentioned, but without specifics.

### 7.3.9 Lesotho (LDC)

| Criteria                                                                | NAPA | NC | PRSP | UNDAF | CAADP <sup>79</sup> | Review 2011 | Summary                                                                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------|------|----|------|-------|---------------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Importance of sector noted</i>                                       |      |    |      |       |                     |             |                                                                                                                                                                                                                                                                           |
| <i>Specific vulnerabilities identified (of relevance to the sector)</i> |      |    |      |       |                     |             |                                                                                                                                                                                                                                                                           |
| <i>Women/vulnerable groups identified</i>                               |      |    |      |       |                     |             |                                                                                                                                                                                                                                                                           |
| <i>Specific actions proposed to address the vulnerabilities</i>         |      |    |      |       |                     |             | <ul style="list-style-type: none"> <li>One of the UNDAF objectives is to “provide leadership, advocacy and policy formulation to the Government, through technical assistance for the development of the national fisheries policy, strategy and action plan”.</li> </ul> |

<sup>79</sup> Not available/does not exist.



### 7.3.10 Madagascar (LDC)

| Criteria                                                                | NAPA | NC | PRSP | UNDAF | CAADP <sup>80</sup> | Review 2011 | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------|------|----|------|-------|---------------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Importance of sector noted</b>                                       |      |    |      |       |                     |             | <ul style="list-style-type: none"> <li>Rich natural resources contribute to the country's economy which is dominated by agriculture, livestock and fisheries. These sectors provide 95% of national food intake and 75% of foreign exchange earnings (from the export of coffee, vanilla, cloves, pepper, lima beans, cocoa and various fish products).</li> <li>Many Malagasy living along the island's 5 603 km coastline depend on fishing. The fisheries sector contributes 23.9% of export earnings and 7% of GDP. This is why the constitution considers fishery resources as strategic resources.</li> <li>After the crisis of 2002, the development of Madagascar's potential in natural resources (including fish stocks, biodiversity and mineral resources) was essential to the achievement of economic growth, realized despite the recurrence of natural disasters (hurricanes, floods, drought) and rising oil prices on the international market.</li> </ul>                                                                                                                                                                                       |
| <b>Specific vulnerabilities identified (of relevance to the sector)</b> |      |    |      |       |                     |             | <ul style="list-style-type: none"> <li>The country is experiencing an overall decline in fish stocks as well as in agricultural production.</li> <li>The impact of climate change is expected to manifest in the flooding of all coastal lowlands and a reduction in the coral coverage owing to perturbations in ocean currents. Rising sea levels are expected to cause coastal erosion and saltwater intrusion. It is also anticipated that Madagascar will experience prolonged periods of drought, more frequent storms and possibly three to five intense tropical cyclones per year.</li> <li>Regarding the shrimp industry, destruction of mangroves in areas north and west of the country, and increased intensity of cyclones, are harmful. Rising sea levels are estimated at 7 or 8 cm/year and may engulf the mangrove areas.</li> <li>The marine environment and related resources are under increasing pressure and there is a serious problem with illegal fishing.</li> <li>There is no continuous/systematic ocean observation system in place in the country, which makes the development of a flood warning system more difficult.</li> </ul> |
| <b>Women/vulnerable groups identified</b>                               |      |    |      |       |                     |             | <ul style="list-style-type: none"> <li>The most vulnerable social groups are fishers and farmers (in Mahajanga).</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Specific actions proposed to address the vulnerabilities</b>         |      |    |      |       |                     |             | <ul style="list-style-type: none"> <li>Potential actions include: establish more protected areas and ensure their financial sustainability; develop and implement sustainable use plans for protected areas; establish a plan for sustainable co-management and related capacity strengthening; develop shrimp (and other types of) aquaculture; create alternative livelihoods to reduce pressure on the shrimp stock; establish fish concentration devices; ensure use of eco-friendly harvesting techniques in the shrimp fishery; replant mangroves; and use coral transplantation technologies.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

<sup>80</sup> Unsigned.

### 7.3.11 Malawi (LDC)

| Criteria                                                                | NAPA | NC | PRSP | UNDAF | CAADP | Review 2011 | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------------------------------------|------|----|------|-------|-------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Importance of sector noted</b>                                       |      |    |      |       |       |             | <ul style="list-style-type: none"> <li>Highly dependent on its natural resources base, including fisheries.</li> <li>Lake Malawi is one of the world's most important fresh water bodies because of its unique and endemic flora and fauna.</li> <li>Provides employment to over 300 000 people, including fishers, processors and those in primary and secondary marketing and distribution activities.</li> <li>The fisheries sector contributes 4% of the GDP.</li> <li>Key source of animal protein.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Specific vulnerabilities identified (of relevance to the sector)</b> |      |    |      |       |       |             | <ul style="list-style-type: none"> <li>Currently experiencing heavy rainfall, floods, seasonal droughts, cold spells, strong winds, thunderstorms, landslides, hailstorms, mudslides and heat waves.</li> <li>Droughts and floods are already adversely affecting the fisheries sector and have been responsible for the declining and/or drying up of water bodies, causing low fish production, loss of habitats and breeding areas and loss of biodiversity.</li> <li>The Shire River, which drains Lake Malawi and provides abundant fisheries, suffers from siltation caused by deforestation and related soil erosion. This river and its tributaries are also affected by pollution.</li> <li>Climate change may indirectly affect the fisheries sector because people move into fishing as an alternative livelihood system following the failure of other sectors such as farming and livestock production.</li> </ul> |
| <b>Women/vulnerable groups identified</b>                               |      |    |      |       |       |             | <ul style="list-style-type: none"> <li>Women bear the overwhelming burden of activities impacted by climate change, including ensuring daily access to food. Female- and child-headed households are common because of the HIV/AIDS epidemic.</li> <li>Climate change may impact on the nutrition levels of many households.</li> <li>Key areas of gender concern include: food and nutrition security, natural resources management and economic empowerment.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Specific actions proposed to address the vulnerabilities</b>         |      |    |      |       |       |             | <p>Proposed interventions include:</p> <ul style="list-style-type: none"> <li>(i) fish breeding to restock the lakes, rivers and dams;</li> <li>(ii) improving knowledge and understanding of how temperature profiles in the lake disrupt fish breeding and survival;</li> <li>(iii) establishing climate observations or monitoring systems on Lake Malawi (including early warning);</li> <li>(iv) mainstreaming climate change into fisheries strategies;</li> <li>(v) improving community resilience to climate change through the development of sustainable rural livelihoods;</li> <li>(vi) formulation and implementation of regulations focused on protecting the most vulnerable stocks as well as enforcing protected areas, through community participation.</li> </ul>                                                                                                                                            |

### 7.3.12 Mauritius (not LDC)

| Criteria                                                                | NAPA<br>81 | NC | PRSP<br>82 | UNDAF<br>83 | CAADP<br>84 | Review<br>2011 | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------|------------|----|------------|-------------|-------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Importance of sector noted</b>                                       |            |    |            |             |             |                | The fisheries sector is of both socioeconomic and cultural importance. It contributes to about 1% to GDP and provides employment to approximately 11 000 people. This sector is expected to play a more important role in the economy, with further development planned.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Specific vulnerabilities identified (of relevance to the sector)</b> |            |    |            |             |             |                | <ul style="list-style-type: none"> <li>○ The key areas already impacted are: infrastructure that supports the livelihoods of communities; water resources; coastal areas; coral reefs, fisheries and other marine-based resources; agriculture; tourism; human health and biodiversity.</li> <li>○ Local fish production has dwindled over the years. Catches have decreased because of a number of factors including climate change, as a result of its impact on coral cover and the marine ecosystem. The islands' rich marine biodiversity is now under threat as a result of global warming with associated sea level rise, coral bleaching and damage to ecosystems.</li> <li>○ With anticipated warming, the following effects are anticipated: migratory shifts in tuna aggregations (disrupting fisheries-dependent industries); changes in fish stock distribution and fluctuations in abundance; and reduced calcification rate of corals through bleaching and ocean acidification.</li> <li>○ Abnormally high temperatures and heavy rainfall have caused several coral bleaching episodes at a number of sites around Mauritius and in Rodrigues. Coastal zones may undergo increased erosion and flooding. And the incidence of intense tropical cyclones is on the rise.</li> </ul> |
| <b>Women/vulnerable groups identified</b>                               |            |    |            |             |             |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Specific actions proposed to address the vulnerabilities</b>         |            |    |            |             |             |                | <ul style="list-style-type: none"> <li>○ The UNDAF notes UN support for sustainable environmental development through its assistance in the artisanal fisheries sub-sector in Rodrigues and assistance in the establishment, extension, consolidation and effective management of both marine and terrestrial protected areas.</li> <li>○ The National Biodiversity Strategy and Action Plan (2006 to 2016) recommends the development of an ICZM plan. Additional measures include increasing the area of coastal wetlands and mangroves within the Protected Area Project.</li> <li>○ Important adaptation measures pertaining to the fisheries sector include: implementation of an aquaculture master plan; creation of marine protected areas and marine parks; and the introduction of closed seasons for certain fisheries and for commercial fishing. The voluntary net buy-back scheme, implemented since 1996, also helps to prevent further degradation.</li> <li>○ Other potential adaptation measures include: sensitization of fishers to climate change impacts; coral farming; strengthening management of coral reef ecosystems; and strengthening ongoing mangrove propagation programmes.</li> </ul>                                                                             |

<sup>81</sup> Not an LDC.

<sup>82</sup> Not available/does not exist?

<sup>83</sup> Old version from early 2000s but significantly mentions the sector.

<sup>84</sup> Unsigned.

### 7.3.13 Mozambique (LDC)

| Criteria                                                                | NAPA | NC | PRSP | UNDAF | CAADP | Review 2011 | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| <b>Importance of sector noted</b>                                       |      |    |      |       |       |             | <ul style="list-style-type: none"> <li>○ Mozambique has the third longest coastline on the African continent, and one that is characterized by a vast variety of ecosystems such as estuaries, dunes, mangrove forests, coastal lakes, banks and coral reefs, marine weed and swamps. These ecosystems represent critical habitats for species of ecological importance and economic value.</li> <li>○ The social and economic activities along the coast, such as fisheries, shipping and port activities, tourism and sports, as well as mining and oil and gas extraction, are still developing but represent significant value. These activities sustain over 60% of coastal people.</li> <li>○ Agriculture, livestock and fisheries are the most important sectors of the economy. The fisheries sector employs 50 000 to 60 000 people and its contribution to the economy is substantial – about 40% of total export earnings.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Specific vulnerabilities identified (of relevance to the sector)</b> |      |    |      |       |       |             | <ul style="list-style-type: none"> <li>○ The coastline is affected by natural factors related to coastal dynamics (like wave action, dispersion of sediments, winds, tides, currents and tropical cyclones), and others related to human activities in the coastal zone (like agriculture, building/construction, port activities, river flow diversions, mining, etc.).</li> <li>○ Extreme climate events such as tropical cyclones and heavy rains occur frequently along the coast and result in erosion. Erosion rates in the north of Mozambique are less intense because the area is protected by coral reefs. However, these reefs are under threat from intense extractive activity, overfishing and sea level rise. Flooding events can disrupt fisheries.</li> <li>○ In spite of restrictions on fishing effort, the shrimp resource shows signs of overexploitation in Sofala Bank, where most of this resource is located. Other human factors include: conflicting utilization of natural resources (tourism, local communities, protected areas, industry, agriculture, sewage disposal, etc.); high population density leading to over-utilization of some coastal resources (overfishing in estuaries and mining of beach rocks, etc.); degradation of some fragile and important ecosystems, such as mangroves, coral reefs and sea grass beds.</li> <li>○ The increase in sea temperature in the Mozambique Channel, as a result of the El Niño phenomenon, has negative impacts on corals. It also affects the transport of nutrients from the deep layer of the oceans to the surface (upwelling).</li> <li>○ Major environmental issues associated with floods in Mozambique are: water pollution; degradation of coastal and marine ecosystems; loss of critical habitats (mangroves, corals, sea grass beds, and wetlands); loss of biodiversity; threat to endangered species and the threat of long-buried land mines moving with flood waters and consequently threatening human life.</li> <li>○ The central region of Mozambique is highly vulnerable to flooding and erosion, particularly the Sofala province. Mozambique is experiencing increased frequency and severity of droughts in the interior of the country and floods in the coastal regions. The majority of coastal zones are below sea level.</li> </ul> |
| <b>Women/vulnerable groups identified</b>                               |      |    |      |       |       |             | <ul style="list-style-type: none"> <li>○ Coastal population in general.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Specific actions proposed to address the vulnerabilities</b>         |      |    |      |       |       |             | <ul style="list-style-type: none"> <li>○ Proposed actions include: strengthening of an early warning system, including assistance from the Ministry of Fisheries; discouraging the use of harmful fishing practices; establishing a monitoring system for dunes, beaches and mangroves; establishing coastal zone management centres; identifying and creating new income activities for local communities that will help reduce poverty and contribute to improved use of coastal and water resources.</li> <li>○ Improving post-harvest practices and value chains are other relevant actions.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

### 7.3.14 Namibia<sup>85</sup> (not LDC)

| Criteria                                                                | NAPA <sup>86</sup> | NC | PRSP <sup>87</sup> | UNDAF | CAADP <sup>88</sup> | Review 2011 | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------|--------------------|----|--------------------|-------|---------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Importance of sector noted</b>                                       |                    |    |                    |       |                     |             | <ul style="list-style-type: none"> <li>○ Namibia has one of the most productive fishing grounds in the world, with the potential for sustainable yields of up to 1.5 million tonnes. The commercial fishing and fish processing sectors significantly contribute to the economy in terms of employment, export earnings and contribution to GDP. Onboard fishing and fish processing contributed 2.9% to GDP in 2008, with land-based fish processing contributing another 1.5%. The sector is a substantial export earner.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Specific vulnerabilities identified (of relevance to the sector)</b> |                    |    |                    |       |                     |             | <ul style="list-style-type: none"> <li>○ The Namibian economy is natural resource based and is extremely sensitive to climate change effects.</li> <li>○ The Zambezi River region is considered vulnerable to flooding and high stream flow puts infrastructure that has been established in the flood plain at risk and makes economic life and access to schools, clinics and government services more difficult in times of flooding.</li> <li>○ The Cuvelai wetlands are recharged partly by local rainfall and partly by run-off from Angola. With decreasing run-off and rainfall there could be serious impacts on these wetlands. Smaller areas will be inundated and increased summer temperatures would lead to increased evaporation and possible increased salt content in the wetlands.</li> <li>○ The coastline of Namibia stretches for 1 500 km and is vulnerable to the effects of sea level rise, through processes such as coastline erosion, flooding and saltwater intrusion. With the projected increasing frequency, intensity and duration of sea storm surges, it is the coastal/marine interface that is likely to be put under the most pressure as habitat changes, destruction, and changes in primary production are likely to have adverse effects on the coastal spawning and nursery grounds and thus reduce the replenishment rates of the natural stocks.</li> <li>○ However, it is impossible to say with certainty what impacts climate change will have on Namibian fisheries at this stage. Links between environmental variability and fisheries dynamics are poorly understood and large environmental anomalies or extreme events, such as the “Benguela Niño”, have negative impacts that far outweigh other incremental changes in the system.</li> </ul> |
| <b>Women/vulnerable groups identified</b>                               |                    |    |                    |       |                     |             | <ul style="list-style-type: none"> <li>○ Climate change will negatively impact on food security and the natural resource base in Namibia. In particular, the poor and vulnerable, especially women and children, will be severely affected.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Specific actions proposed to address the vulnerabilities</b>         |                    |    |                    |       |                     |             | <ul style="list-style-type: none"> <li>○ Aquaculture has been identified as a key development focus for the next 30 years, but has not performed as expected owing to a lack of financing. Freshwater aquaculture is promoted to increase food security in rural areas, while mariculture exploits lucrative markets in Asia and South Africa. Mariculture development has been slow because suitable space is a critical limiting factor.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

<sup>85</sup> Namibia also has a policy on climate change, which discusses the fisheries sector.

<sup>86</sup> Not an LDC.

<sup>87</sup> Not available/does not exist?

<sup>88</sup> Unsigned.

### 7.3.15 Rwanda (LDC)

| Criteria                                                                | NAPA | NC <sup>89</sup> | PRSP <sup>90</sup> | UNDAF <sup>91</sup> | CAADP | Review 2011 | Summary                                                                                        |
|-------------------------------------------------------------------------|------|------------------|--------------------|---------------------|-------|-------------|------------------------------------------------------------------------------------------------|
| <i>Importance of sector noted</i>                                       |      |                  |                    |                     |       |             |                                                                                                |
| <i>Specific vulnerabilities identified (of relevance to the sector)</i> |      |                  |                    |                     |       |             | ○ Climate change is expected to affect the country by causing prolonged droughts and flooding. |
| <i>Women/vulnerable groups identified</i>                               |      |                  |                    |                     |       |             |                                                                                                |
| <i>Specific actions proposed to address the vulnerabilities</i>         |      |                  |                    |                     |       |             |                                                                                                |

<sup>89</sup> The sector is mentioned, but without specifics.

<sup>90</sup> A programme to develop aquaculture is mentioned, but without specifics.

<sup>91</sup> FAO is tasked to provide technical assistance for the formulation of legislation in the area of the organization's mandate (agriculture, land, livestock, forestry, fisheries and food security).

### 7.3.16 Seychelles (not LDC)

| Criteria                                                                | NAPA <sup>92</sup> | NC | PRSP <sup>93</sup> | UNDAF <sup>94</sup> | CAADP <sup>95</sup> | Review 2011 | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------|--------------------|----|--------------------|---------------------|---------------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Importance of sector noted</b>                                       |                    |    |                    |                     |                     |             | <ul style="list-style-type: none"> <li>○ The economy of this small country is primarily dependent on tourism and fisheries, which provide most of its foreign exchange earnings. Fishing is the most important industry after tourism in Seychelles, contributing 4% of the GDP, and the sector is the country's leading employer.</li> <li>○ The per capita consumption of fish is high, about 80 kg/year.</li> <li>○ The export of canned tuna, fresh and frozen fish constitutes about 83% of the value of Seychelles' exports and about 10% of total foreign exchange earnings.</li> <li>○ Because of its exceptionally large Exclusive Economic Zone, Seychelles is a world leader in the transshipment of tuna fish and tuna products.</li> <li>○ Foreign fishing vessel licensing and related supplies and services generate considerable income.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Specific vulnerabilities identified (of relevance to the sector)</b> |                    |    |                    |                     |                     |             | <ul style="list-style-type: none"> <li>○ Global warming can influence ocean-atmosphere interactions, altering ocean currents and hence the delivery of nutrients into the euphotic layer. This could result in changes in reproductive patterns, migration routes and ecosystem relationships.</li> <li>○ Sea level rise would result in saltwater intrusion in rivers, marshes, or wetlands and adversely affect the habitat of certain species of fish and shellfish. Aquaculture would be severely affected by sea level rise because it might result in the destruction of facilities and the propagation of bacteriological diseases.</li> <li>○ A rise in sea surface temperature will cause coral bleaching with serious economic consequences.</li> <li>○ A slowly rising sea level would allow mangrove systems to migrate inland, but the utilization of the islands for development purposes means that there may not be room to accommodate them. There is also a real risk that hyper-salinity may affect the growth of mangroves.</li> <li>○ If the changes result in migration of species from one EEZ to another, a reduction in revenue from fishing licenses and related port authority services in Seychelles is possible. With decreased revenue from fisheries, as a result of sea surface temperature variability, pressure for increased fishing effort may emerge. The Seychelles may experience a decline in nutritional status as a result of adverse impacts on food and fisheries productivity.</li> </ul> |
| <b>Women/vulnerable groups identified</b>                               |                    |    |                    |                     |                     |             | <ul style="list-style-type: none"> <li>○ Although conclusive data have not yet been published, it is expected that coastal fisheries and dependent communities may be severely affected as a result of coral bleaching events.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Specific actions proposed to address the vulnerabilities</b>         |                    |    |                    |                     |                     |             | <ul style="list-style-type: none"> <li>○ Numerous actions are proposed, mainly relating to the implementation of an ecosystem approach to fisheries management. Other proposed actions include the establishment of community pilot projects to address the impacts of coastal erosion and flooding; and development of innovative financing mechanisms to enable community participation in risk reduction efforts.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

<sup>92</sup> Not an LDC.

<sup>93</sup> Not available/does not exist?

<sup>94</sup> Not available/does not exist?

<sup>95</sup> The sector is mentioned, but without specifics.

### 7.3.17 Somalia (LDC)

| Criteria                                                                | NAPA <sup>96</sup> | NC <sup>97</sup> | PRSP <sup>98</sup> | UNDAF <sup>99</sup> | CAADP <sup>100</sup> | Review 2011 | Summary                                                                                                      |
|-------------------------------------------------------------------------|--------------------|------------------|--------------------|---------------------|----------------------|-------------|--------------------------------------------------------------------------------------------------------------|
| <i>Importance of sector noted</i>                                       |                    |                  |                    |                     |                      |             |                                                                                                              |
| <i>Specific vulnerabilities identified (of relevance to the sector)</i> |                    |                  |                    |                     |                      |             | ○ Vulnerability is compounded by the fact that the country is coastal, low-lying, poor and disrupted by war. |
| <i>Women/vulnerable groups identified</i>                               |                    |                  |                    |                     |                      |             |                                                                                                              |
| <i>Specific actions proposed to address the vulnerabilities</i>         |                    |                  |                    |                     |                      |             |                                                                                                              |

<sup>96</sup> Not available/does not exist?

<sup>97</sup> Not available/does not exist?

<sup>98</sup> Not available/does not exist?

<sup>99</sup> Not available/does not exist? However, a UN Somalia Assistance Strategy notes that successful expansion of productive capacities of the agriculture, livestock and fishery sectors will depend on the involvement of empowered youth. One of the indicators for the Poverty Reduction and Livelihoods Outcome is income from fish sales and consumption of coastal population (disaggregated by sex).

<sup>100</sup> Unsigned/process not yet started?



### 7.3.18 South Africa (not LDC)

| Criteria                                                                | NAPA <sup>101</sup> | NC | PRSP | UNDAF | CAADP <sup>102</sup> | Review 2011 | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------|---------------------|----|------|-------|----------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Importance of sector noted</b>                                       |                     |    |      |       |                      |             | <ul style="list-style-type: none"> <li>The commercial and recreational fishing industries are a relatively small economic sector, contributing about 1% of GDP, valued at approximately R4 or 5 billion annually and providing employment for an estimated 27 700 individuals, with secondary industries such as fish processing, transport of fish products and boat building employing a further 60 000.</li> <li>Subsistence fishing and marine resource harvesting practices, although small and localized, are important for some coastal subsistence livelihoods.</li> <li>The aquaculture industry is small but growing. Mariculture developments include abalone, black mussel, oyster, prawn, finfish and seaweed production. Abalone farming, mainly on the Cape south coast, supplies 21% of the global market and is expanding rapidly. Experimental offshore salmon and finfish cage farming is underway and indications are that mariculture production could increase substantially.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Specific vulnerabilities identified (of relevance to the sector)</b> |                     |    |      |       |                      |             | <ul style="list-style-type: none"> <li>Southern Africa experiences strong oceanic influences on its weather and climate patterns and derives significant socioeconomic benefits from marine and coastal resources, therefore the link between climate change and the marine and coastal environment is a critical one for projecting impacts on South Africa and her neighbours. The degradation of many of South Africa's estuaries as a result of global change drivers such as eutrophication, fishing and harvesting, freshwater abstraction, sedimentation and mouth manipulation, has been well documented.</li> <li>65% of South Africa's marine bio-zones are threatened, with 1% critically endangered, 15% endangered, 38% vulnerable, and 35% least threatened. Critically endangered marine zones occur primarily on the west coast, where both mining and commercial fishing are responsible.</li> <li>Increased storminess and sea level rise may result in a loss of estuarine habitat which ultimately affects estuarine fish communities and will have repercussions for fisheries. The magnitude, timing and distribution of severe storms that produce floods may also increase. South Africa has experienced significant declines in catches and a loss of many species, both as a result of overfishing and natural migration of fish populations related to environmental changes. Despite legislation, poorly controlled illegal fishing is adversely affecting high-value species.</li> <li>Freshwater ecosystems are also at risk, with 37 invasive alien species of freshwater fish currently recorded.</li> <li>Algal blooms occur at the base of the food chain and affect aquatic ecosystems, particularly in dams and lakes.</li> </ul> |
| <b>Women/vulnerable groups identified</b>                               |                     |    |      |       |                      |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Specific actions proposed to address the vulnerabilities</b>         |                     |    |      |       |                      |             | <ul style="list-style-type: none"> <li>Proposed actions include increasing the size and number of marine areas under protection and ensuring sound integrated ecosystem management practices, including adaptive management approaches.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

<sup>101</sup> Not an LDC.

<sup>102</sup> Unsigned.

### 7.3.19 Sudan (including South Sudan) (LDCs)

| Criteria                                                                | NAPA | NC <sup>103</sup> | PRSP <sup>104</sup> | UNDAF | CAADP <sup>105</sup> | Review 2011 | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------|------|-------------------|---------------------|-------|----------------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Importance of sector noted</i>                                       |      |                   |                     |       |                      |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <i>Specific vulnerabilities identified (of relevance to the sector)</i> |      |                   |                     |       |                      |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <i>Women/vulnerable groups identified</i>                               |      |                   |                     |       |                      |             | <ul style="list-style-type: none"> <li>○ The high proportion of youth in the population represents an opportunity to harness vast human capital for development – but young people also face numerous difficulties, especially in the South, where many received little education during the war and face a frustrating lack of livelihood opportunities.</li> <li>○ Other vulnerable groups include former combatants, victims of land mines and Women Associated with Armed Forces (WAAF).</li> </ul>                                                                                                                                                                                                                                                                                                 |
| <i>Specific actions proposed to address the vulnerabilities</i>         |      |                   |                     |       |                      |             | <ul style="list-style-type: none"> <li>○ There is a general need to increase food security, improve agricultural productivity and strengthen sustainable livestock farming and fisheries practices.</li> <li>○ Key adaptation activities include the introduction of drought-resistant seed varieties; and improving poultry and fish production and fish utilization. The latter builds on the fact that in addition to poverty, malnutrition and malaria, communities in the East Jebbel Marra, Safia Lake, Kundi, and Kidinir areas have been severely affected by recurrent drought episodes. Measures such as preventing malaria and enhancing nutrition by improving water resource (lakes) and fishery management are expected to contribute to building local resilience to drought.</li> </ul> |

<sup>103</sup> Not available/does not exist?

<sup>104</sup> Not available/does not exist?

<sup>105</sup> Signed but not available?

### 7.3.20 Swaziland (not LDC)

| Criteria                                                                | NAPA <sup>106</sup> | NC | PRSP <sup>107</sup> | UNDAF | CAADP <sup>108</sup> | Review 2011 | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------|---------------------|----|---------------------|-------|----------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Importance of sector noted</b>                                       |                     |    |                     |       |                      |             | <ul style="list-style-type: none"> <li>○ The contribution of the fisheries sector to the national economy is negligible because of the limited quantity of fish in the country. However, aquaculture is making a contribution to food security by improving the nutritional status of the population and generating income. Aquaculture is encouraged by the government and there are currently fish ponds located all over the country.</li> </ul> |
| <b>Specific vulnerabilities identified (of relevance to the sector)</b> |                     |    |                     |       |                      |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Women/vulnerable groups identified</b>                               |                     |    |                     |       |                      |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Specific actions proposed to address the vulnerabilities</b>         |                     |    |                     |       |                      |             | <ul style="list-style-type: none"> <li>○ The UNDAF identifies the need to improve the capacity of key stakeholders and thereby ensure the mainstreaming of gender and environment issues into poverty reduction strategies.</li> </ul>                                                                                                                                                                                                              |

<sup>106</sup> Not an LDC.

<sup>107</sup> The sector is mentioned, but without specifics.

<sup>108</sup> The sector is mentioned, but without specifics.

### 7.3.21 Tanzania (LDC)

| Criteria                                                                | NAPA | NC | PRSP | UNDAF | CAADP | Review 2011 | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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| <b>Importance of sector noted</b>                                       |      |    |      |       |       |             | <ul style="list-style-type: none"> <li>○ Tanzania has substantial fishery resource potential – both in fresh and marine waters – and if the resources are sustainably utilized they have the potential to contribute to improved livelihoods and nutrition.</li> <li>○ Apart from being economically significant, river basins play an important role in sustaining the daily livelihoods of local communities through fishing and traditional farming irrigation systems. The coastal and marine resources of Tanzania have a profound influence on the socioeconomic well-being and health of coastal communities and other parts of the population because the highly productive ecosystems play a significant role in the economic and social development of the country.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Specific vulnerabilities identified (of relevance to the sector)</b> |      |    |      |       |       |             | <ul style="list-style-type: none"> <li>○ Vulnerabilities include: destruction of breeding sites for fishes and other aquatic life (including wetlands and mangroves); coral bleaching and the related reduction of marine biodiversity; and increase in the strength and frequency of tropical storms.</li> <li>○ Non-climatic vulnerabilities include: illegal fishing and trafficking of fish and fishery products across borders; use of inappropriate fishing gears by small- and medium-scale fishers; limited credit; and high post-harvest losses.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Women/vulnerable groups identified</b>                               |      |    |      |       |       |             | <ul style="list-style-type: none"> <li>○ Owing to the importance of the sea and coastline, the welfare of coastal populations and the socioeconomic value of marine resources to the country, the coastline has to be protected against any effect of climate change.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Specific actions proposed to address the vulnerabilities</b>         |      |    |      |       |       |             | <ul style="list-style-type: none"> <li>○ Potential adaptation actions include: restoration of degraded habitat (e.g. vertiva grass planting, mangrove replanting, stimulation of coral reef growth); construction of artificial structures (e.g. sea walls and artificially placing sand on the beaches); reduction or elimination of non-climate stress (e.g. elimination of destructive fishing practices, illegal and overfishing); reduction of pollution; proper management of salt production and seaweed farming; coastal ecosystem monitoring; improving existing and expanding irrigation infrastructure and developing rain water harvesting infrastructure, including water for livestock and fisheries; strengthening physical infrastructure to support growth of employment generating and profitable agriculture, including small-scale crop faming, livestock, fishery, etc.; promoting measures to cushion farmers, livestock farmers, fishers from the impacts of famine/droughts, including piloting and scaling up farm/crops/livestock insurance; promoting investment in the exploration of deep sea and Exclusive Economic Zone fisheries resources; and promoting effective development of the aquaculture industry.</li> <li>○ Another adaptation action is the implementation of the ecosystem approach to fisheries.</li> </ul> |

### 7.3.22 Uganda (LDC)

| Criteria                                                                | NAPA | NC | PRSP | UNDAF | CAADP | Review 2011 | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------|------|----|------|-------|-------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Importance of sector noted</b>                                       |      |    |      |       |       |             | <ul style="list-style-type: none"> <li>Uganda has abundant water resources, including swamps, covering a total area of 43,942 km<sup>2</sup>, representing 18% of Uganda's total surface area and providing an excellent habitat for fish.</li> <li>Fishing is a key sector in the Ugandan economy – it contributes to food security, household income and economic growth. It is now estimated that the sector contributes 2.4% to GDP but it has also been argued that this figure may be as high as 5.8%. Fish is a major source of food and foreign exchange earnings because Ugandan fish products are in high demand on international markets.</li> <li>Over 40% of Uganda's population derives considerable economic benefits from Lake Victoria, in the form of fishing, water supply, transport, hydro energy and tourism, etc. It is estimated that over 200 000 people, most of whom are poor, are <u>directly</u> involved in the fishing industry (not taking into account those employed in the related value-adding industries).</li> </ul>                                                                                                                                                                                                              |
| <b>Specific vulnerabilities identified (of relevance to the sector)</b> |      |    |      |       |       |             | <ul style="list-style-type: none"> <li>Unsustainable exploitation, frequently driven by external market forces, has resulted in serious biodiversity loss with some species close to extinction. However, climate change (e.g. increased frequency of extreme weather events such as droughts, floods and landslides) is posing a serious threat to Uganda's natural resources and social and economic development. Once disaster strikes, fishing activities intensify as an alternative livelihood option, particularly in areas where arable land is scarce.</li> <li>Increased electricity tariffs lead to increased demand for firewood, which in turn leads to increased deforestation, soil erosion, damage to watersheds, flooding and silting of rivers and lakes.</li> <li>Prolonged and severe droughts can lead to low water levels in rivers, underground aquifers and reservoirs, impacting on the hydrology, biodiversity and water supply.</li> <li>Fish production statistics indicate that catches from Lake Victoria are dwindling, while those in Lakes Edward and George are almost non-existent. Catches in Lake Kyoga have also dropped. Contributing factors include the use of illegal fishing gears and fishing in breeding areas.</li> </ul> |
| <b>Women/vulnerable groups identified</b>                               |      |    |      |       |       |             | <ul style="list-style-type: none"> <li>From 1997 to 2000, the European Union imposed three export bans on fish from Uganda. Over this period, there was a general reduction in rural poverty with the exception of 3% of the population who are engaged in fishing and fish farming. The fishing industry was seriously affected by the ban on fish exports.</li> <li></li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Specific actions proposed to address the vulnerabilities</b>         |      |    |      |       |       |             | <ul style="list-style-type: none"> <li>Potential adaptation actions include: reducing siltation of river banks and lake shores by increasing vegetation; controlling diseases and vectors in fisheries; improving capacity for quality assurance, regulation, food and safety standards for outputs and products; enforcing fisheries laws, regulations, standards and guidelines along the entire value chain; supporting the increase in acreage of both small-scale and large-scale aquaculture; improving water quality management, including lake transport and control of water hyacinth and other invasive weeds.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

### 7.3.23 Zambia (LDC)

| Criteria                                                                | NAPA | NC | PRSP | UNDAF | CAADP | Review 2011 | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------|------|----|------|-------|-------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Importance of sector noted</b>                                       |      |    |      |       |       |             | <ul style="list-style-type: none"> <li>Many communities across the nation depend on fishing as source of food security and livelihoods. Fish and fishing contribute about 55% of the population's total protein requirement and employ about 300 000 people directly or indirectly.</li> <li>The fisheries sub-sector has great potential to support livelihoods, but production trends have not grown consistently – catches from the artisanal sub-sector have remained static.</li> <li>Agriculture, including livestock, forestry and fishing, accounts for about 17% of GDP and over 70% of employment.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Specific vulnerabilities identified (of relevance to the sector)</b> |      |    |      |       |       |             | <ul style="list-style-type: none"> <li>Identified vulnerabilities include: droughts, floods and extreme heat.</li> <li>Lower rainfall would reduce nutrient levels in rivers and lakes and impact negatively on fish breeding activity as well as depletion of fish species in the long-term (commercial fish species, e.g. breams and sardines, in drought prone agro-ecological zones were identified as being most vulnerable). Fish farming would undergo similar consequences from reduced water levels in ponds. Conversely, a rise in water levels in river channels would submerge the surrounding swamps and dambos (shallow wetlands) thereby turning them into ideal fish breeding grounds and resulting in increased production in the long term.</li> <li>Environmental degradation, especially deforestation and wildlife and fish depletion, has become particularly severe and could be attributed to the pressures of poverty which result in diverse coping strategies. Consequently, the demand for fish outstrips supply. The declining yields in capture fisheries have been attributed to increasing human population in fishing areas and unsustainable fishing practices, such as fishing in breeding sanctuaries and the harvesting of immature fish. Furthermore, the sub-sector is constrained by poor storage and preservation facilities, unreliable transport services and poor infrastructure.</li> </ul> |
| <b>Women/vulnerable groups identified</b>                               |      |    |      |       |       |             | <ul style="list-style-type: none"> <li>When diseases strike, children under five years of age, women, old people, fishers, farmers, orphans and people living with HIV/AIDS (PLWHA) are the most affected. The localities that are most affected by disease outbreaks include Kafue flats (flood plains), fish camps, shanty compounds and villages.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Specific actions proposed to address the vulnerabilities</b>         |      |    |      |       |       |             | <ul style="list-style-type: none"> <li>Potential adaptation actions include: restocking of lakes, rivers and dams; promotion of aquaculture, using suitable species; development of small dams and other storage facilities, to mitigate droughts/flooding, harvest water and initiate community-based fish farming and breeding; strict licensing to regulate influx of fishers; introduction and strengthening of co-management (e.g. through improving legal framework); improvement of water harvesting techniques; strengthening of gender balanced research-extension-farmer linkages; promotion of improved fish processing and storage; and income diversification.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

### 7.3.24 Zimbabwe (not LDC)

| Criteria                                                                | NAPA <sup>109</sup> | NC | PRSP <sup>110</sup> | UNDAF | CAADP <sup>111</sup> | Review 2011 <sup>112</sup> | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------|---------------------|----|---------------------|-------|----------------------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Importance of sector noted</b>                                       |                     |    |                     |       |                      |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Specific vulnerabilities identified (of relevance to the sector)</b> |                     |    |                     |       |                      |                            | <ul style="list-style-type: none"> <li>○ Climate change is expected to cause increased temperatures, more frequent droughts, decreases in precipitation, seasonal shifts in rainfall, localised floods, varying river flow and wildfires.</li> <li>○ Zimbabwe is home to the SADC Regional Early Warning Unit, which monitors changes in weather and provides alerts to member countries to prepare for possible droughts or flooding.</li> </ul> |
| <b>Women/vulnerable groups identified</b>                               |                     |    |                     |       |                      |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Specific actions proposed to address the vulnerabilities</b>         |                     |    |                     |       |                      |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

<sup>109</sup> Not an LDC.

<sup>110</sup> Not available/does not exist? A similar document exists, called the National Economic Development Priority Programme, but it does not contain anything of relevance.

<sup>111</sup> Unsigned.

<sup>112</sup> The sector is mentioned, but without specifics: *The current adaptation projects in Zimbabwe are addressing needs in the areas of agriculture and disaster risk management most commonly. Other areas receiving attention are fisheries. While current actions are responding to adaptation priorities, there is also a need for more projects that focus on the gender dimensions of climate change impacts.*

## **7.4 Stakeholders and organizations consulted**

### **Regional Economic Communities**

1. East African Community (EAC)
2. Indian Ocean Commission (IOC)
3. Southern African Development Community (SADC)

### **Regional Fisheries Bodies, Regional Fisheries Organizations and Lake/Basin Commissions**

4. Committee for Inland Fisheries and Aquaculture of Africa (CIFAA)
5. Indian Ocean Tuna Commission (IOTC)
6. Lake Malawi Basin Commission
7. Lake Tanganyika Authority
8. Lake Victoria Basin Commission
9. Lake Victoria Fisheries Organization (LVFO)
10. Permanent Okavango River Basin Water Commission (OKACOM)
11. South East Atlantic Fisheries Organization (SEAFO)
12. South Indian Ocean Fisheries Agreement (SIOFA)
13. South West Indian Ocean Fisheries Commission (SWIOFC)
14. Zambezi Watercourse Commission (ZAMCOM)

### **Large Marine Ecosystems**

15. Agulhas and Somali Current Large Marine Ecosystems (ASCLME) project
16. Benguela Current Commission (BCC)

### **Other key organizations/projects/donors**

17. ACP Fish II Project
18. Adaptation Fund
19. African Confederation of Small-Scale Fisheries Professional Organization (Confédération africaine des organisations professionnelles de pêche artisanale) (CAOPA)
20. African Development Bank – project on Improving Statistics for Food Security, Sustainable Agriculture and Rural Development
21. African Development Bank- ClimDev – Africa Special Fund
22. Aquaculture Network for Africa (ANAF)
23. Clean Technology Fund and the Strategic Climate Fund – Climate Investment Funds
24. Committee on Inland Fisheries and Aquaculture in Africa (CIFAA)
25. Danish International Development Agency (DANIDA)
26. EAF-Nansen project
27. EC Global Climate Alliance
28. FAO Special Programme for Aquaculture Development in Africa (SPADA)
29. FAO TCP projects on aquaculture development
30. FishCode STF project and Fishery Resources Monitoring System (FIRMS)
31. GEF – Least Developed Countries Fund (LDCF); Special Climate Change Fund (SCCF); Trust Fund
32. Government of France - French Fund for the Global Environment
33. Government of Germany – International Climate Initiative
34. Government of Japan – Hatoyama Initiative
35. Inter-American Development Bank – Sustainable Energy and Climate change Initiative
36. International Collective in Support of Fishworkers (ICSF)
37. International Development Association
38. International Development Research Centre (IDRC)
39. International Fund for Agricultural Development (IFAD)
40. Japan Cool Earth Partnership
41. Japan International Cooperation Agency (JICA)
42. Norwegian Agency for Development Cooperation (NORAD)
43. Swedish International Development Cooperation Agency (SIDA)
44. UK Government Department for International Development (DFID)



45. UN Office for Project Services (UNOPS)
46. UNDP African Adaptation Programme; MDG Achievement Fund; Environment and Climate Change thematic window
47. United Nations Framework Convention on Climate Change (UNFCCC)
48. United Nations International Strategy for Disaster Reduction (UNISDR)
49. United States Agency for International Development (USAID)
50. West Africa Regional Fisheries Programme (WARFP)
51. West African Network for fisheries Policies (REPAO)
52. World Bank – Congo Basin Forest Fund; Global facility for Disaster Reduction and Recovery; Pilot Programme for Climate Resilience; Strategic Climate Fund
53. World Wide Fund for Nature (WWF)
54. WorldFish Center

## 7.5 Survey questionnaire

### Mapping of fisheries and aquaculture related climate change adaptation

On behalf of the NEPAD-FAO Fish Programme (NFFP), NFDS Africa is undertaking a study to identify key players, gaps and areas for further support with regard to climate change adaptation (CCA) and disaster risk management (DRM) in fisheries/aquaculture in Western/Central and Southern/Eastern Africa. Subsequently, regional workshops will be held to discuss the findings of this study.

The purpose of this questionnaire is to map out past/current/planned/potential future initiatives in relation CCA and DRM in fisheries/aquaculture in Western/Central and Southern/Eastern Africa. Your contribution is greatly appreciated.

**\*1. Please tell us your:**

Name:

Position:

Email address:

Organisation/programme/project/initiative:

**\*2a. Is your organisation/programme/project/initiative engaged in any activity (previously/currently/in the future) related to CCA/DRM in fisheries or aquaculture?**

- ☐ Yes
- ☐ No

**\*2b. Please describe this activity:**

**\*2c. Please describe the risks/impacts that this activity is addressing (cyclones, food insecurity, sea level rise, etc.).**

**\*2d. What is the time frame of this activity?**

- ☐ 0-6 months
- ☐ 6-12 months
- ☐ 1-2 years
- ☐ 2-3 years
- ☐ 3-4 years
- ☐ Longer

## Mapping of fisheries and aquaculture related climate change adaptation

**\*2e. Which is the lead organisation? Please specify with name, contact details and information on relevant capacity.**

**\*2f. Which partners are involved?**

- ☐ None
- ☐ UN
- ☐ Regional Economic Community
- ☐ Regional Fisheries Body
- ☐ Non-governmental or civil society organisation
- ☐ Government
- ☐ Other

Please specify

**\*2g. At what level is this activity being carried out?**

- ☐ Regional
- ☐ National
- ☐ Local
- ☐ Community
- ☐ Other

Please specify

## Mapping of fisheries and aquaculture related climate change adaptation

**\*2h. Are there any synergies/linkages between this activity and the Comprehensive Africa Agriculture Development Programme (CAADP) national compacts?**

☐ Yes

☐ No

Please specify

**\*2i. Are there any synergies/linkages between this activity and the National Communications or National Adaptation Programmes of Action (NAPAs) for climate change?**

☐ Yes

☐ No

Please specify

**\*2j. Are there any synergies/linkages between this activity and the national or regional disaster risk management frameworks?**

☐ Yes

☐ No

Please specify

**\*2k. Are there any other programmes/projects/initiatives you are involved in that relate to CCA/DRM in fisheries or aquaculture (Or vice versa)?**

☐ Yes

☐ No

## Mapping of fisheries and aquaculture related climate change adaptation

**\*2j. Are there any synergies/linkages between this activity and the national or regional disaster risk management frameworks?**

☐ Yes

☐ No

Please specify

**\*2k. Are there any other programmes/projects/initiatives you are involved in that relate to CCA/DRM in fisheries or aquaculture (Or vice versa)?**

☐ Yes

☐ No

If you are involved in more CCA/DRM related organisations/programme/initiatives we will be in touch with you.

**\*3. Would your organisation/programme/project/initiative benefit from support or assistance in CCA and/or DRM in fisheries or aquaculture activities (or vice versa: fisheries and aquaculture support in CCA or DRM activities)? Please specify:**

**Mapping of fisheries and aquaculture related climate change adaptation**

**\*4a. Are there any other emerging initiatives that may be of relevance to this questionnaire (i.e in relation to climate change adaptation or disaster risk management in fisheries, aquaculture or other related areas)?**

☐ Yes

☐ No

Please specify:

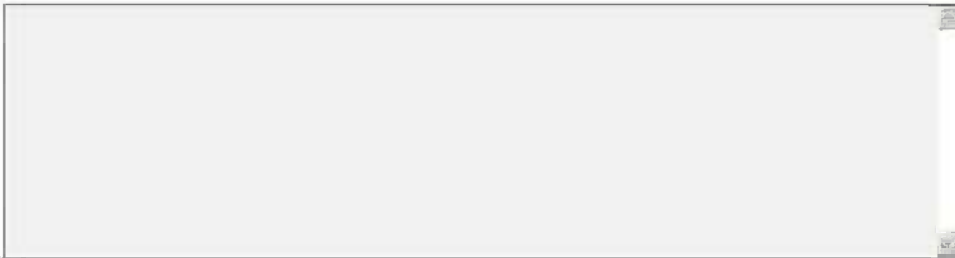


**4b. Are you familiar with any national or regional climate change/disaster risk management strategies or institutional frameworks in your region?**

☐ Yes

☐ No

Please specify:



## 7.6 Documents consulted

Information was gathered from the following documents for the mapping of interventions and projects/programmes.

1. ACP Secretariat. 2010. Desk study on main donors support to the fisheries and aquaculture sector in ACP countries. Brussels, Belgium. ACP Ambassadorial Working Group on Fisheries. ACP Secretariat, Centre for Development of Enterprise, Technical Centre for Agricultural and Rural Co-operation. 91pp.
2. CIGI. 2010. Africa's Climate Change Reality: the African Initiative Congress on climate change. The Centre for International Governance Innovation (CIGI).
3. African LME Caucus. 2011. LME News – the newsletter of the African LME Caucus. Issue 1, August 2011. Available at: <http://iwlearn.net/news/AfricanLMENewsletterAugust2011.pdf>
4. African Regional Strategy for Disaster Risk Reduction. 2004. AUC, NEPAD and UNISDR.
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7. Badjeck, M.C., Katikiro, R.E., Flitner, M., Diop, N. and Schwerdtner, M.K. 2011. Envisioning 2050: climate change, aquaculture and fisheries in West Africa. Dakar, Senegal, 14-16 April 2010. Penang, Malaysia. The WorldFish Centre. Workshop report 2125. 28pp.
8. Benguela Current Large Marine Ecosystem Programme. 2000. Strategic Action Programme (updated 2002). Windhoek, Namibia. BCLME Programme.
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## 7.7 Regional initiatives and interventions in fisheries and aquaculture in respect to climate change and disasters

The sections below provide detail on regional fisheries and aquaculture initiatives and interventions relevant to CCA and/or DRM and CCA and/or DRM initiatives and programmes relevant to fisheries and aquaculture. An asterisk after the implementing organization details indicates that the project is “truly” regional (global, pan-African or sub-Saharan).

| Project period  |  | Priority ranking of level of engagement |  |
|-----------------|--|-----------------------------------------|--|
| Past project    |  | No engagement of subject area           |  |
| Current project |  | Some engagement of subject area         |  |
| Planned project |  | Core focus on subject area              |  |

| Implementing ORGANIZATION(s)                                                                                                                                                                    | COUNTRIES                       | NAME OF PROJECT                                       | Funding ORGANIZATION(s) | PROJECT PERIOD<br>Including past, current and future | AIM/KEY ACTIVITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | SOURCE DOCUMENT/<br>WEBSITE                                                                                                                                                                                                                               | Priority ranking |      |     |     |
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| ACCRA is a consortium made up of Oxfam GB, the Overseas Development Institute (ODI), Save the Children Alliance, Care International and World Vision International and funded by DFID and CDKN. | Ethiopia, Mozambique and Uganda | The Africa Climate Change Resilience Alliance (ACCRA) | -                       |                                                      | <p>ACCRA aims to increase the use by governments and development actors of evidence in designing and implementing both humanitarian and development interventions that increase the adaptive capacity of poor and vulnerable communities.</p> <p>ACCRA has four key objectives:</p> <ol style="list-style-type: none"> <li>1) To understand how projects in the areas of social protection, livelihoods and disaster risk reduction that are implemented by ACCRA members build adaptive capacity to climate change in beneficiaries, and how these approaches can be strengthened.</li> <li>2) To use the findings to influence donors, development partners and civil society to improve future planning/action.</li> <li>3) To work together with local and national governments to build capacity to implement interventions which can strengthen the adaptive capacity of communities.</li> <li>4) To encourage learning across countries and disciplines.</li> </ol> <p>ACCRA has four programme components:</p> <ol style="list-style-type: none"> <li>1) In-depth research</li> <li>2) Capacity-building</li> <li>3) The ACCRA Local Adaptive Capacity Framework (LAC), a conceptual tool used to frame research.</li> <li>4) Working and learning with others.</li> </ol> | <p><a href="http://policy-practice.oxfam.org.uk/our-work/climate-change-drr/accra">http://policy-practice.oxfam.org.uk/our-work/climate-change-drr/accra</a></p> <p><a href="http://community.eldis.org/accra/">http://community.eldis.org/accra/</a></p> |                  |      |     |     |

| Implementing ORGANIZATION(s)                                                                                                       | COUNTRIES                   | NAME OF PROJECT                    | Funding ORGANIZATION(s)  | PROJECT PERIOD<br>Including past, current and future | AIM/KEY ACTIVITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | SOURCE DOCUMENT/ WEBSITE           | Priority ranking |      |     |     |
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| AfricaAdapt                                                                                                                        | All of sub-Saharan Africa   | AfricaAdapt                        | IDRC, DFID               |                                                      | <p>AfricaAdapt is an independent bilingual network (French/English) focused exclusively on Africa. The Network's aim is to facilitate the flow of climate change adaptation knowledge for sustainable livelihoods between researchers, policy makers, civil society organizations and communities who are vulnerable to climate variability and change across the continent. The network uses the latest web-based applications, face-to-face interactions and other media for: sharing resources; facilitating learning; and strengthening the African adaptation community. Online activities are complemented by a range of offline activities and services, including:</p> <ul style="list-style-type: none"> <li>• An innovation fund offering small grants for new approaches to knowledge sharing;</li> <li>• Radio-based programming and dialogues in local languages, developed with community radio broadcasters across the continent;</li> <li>• Face-to-face meetings bringing people together to exchange ideas and overcome challenges;</li> <li>• A CD-Rom and paper-based dissemination service for network news and resources.</li> </ul> <p><b>Tanzania:</b> The Tanzania Coastal Management Partnership (TCMP) is a joint initiative between the Tanzanian Vice President's Office through the National Environment Management Council (NEMC) in Tanzania; United States Agency for International Development (USAID); and the Coastal Resources Center/University of Rhode Island (CRC/URI) in USA.</p> | www.africa-adapt.net/              |                  |      |     |     |
| African Development Bank (AfDB), the African Union Commission (AUC) and the United Nations Economic Commission for Africa (UNECA). | African Union Member States | ClimDev-Africa Special Fund (CDSF) | African Development Bank |                                                      | <p>The CDSF is a joint initiative of the African Development Bank (AfDB), the African Union Commission (AUC) and the United Nations Economic Commission for Africa (UNECA). The objective of the CDSF is to strengthen the institutional capacities of national and subregional bodies to formulate and implement effective climate-sensitive policies. In order to achieve this objective, the CDSF supports three main areas of interventions:</p> <ol style="list-style-type: none"> <li>1) Generation and wide dissemination of reliable and high quality climate information in Africa;</li> <li>2) Capacity enhancement of policy makers and policy support institutions to integrate climate change information into development programs;</li> <li>3) Implementation of pilot adaptation practices that demonstrate the value of mainstreaming climate information into development.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ClimDev-Africa Special Fund (CDSF) |                  |      |     |     |

| Implementing ORGANIZATION(s)    | COUNTRIES                                                  | NAME OF PROJECT                                                              | Funding ORGANIZATION(s) | PROJECT PERIOD<br>Including past, current and future | AIM/KEY ACTIVITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | SOURCE DOCUMENT/ WEBSITE                                                                                                                                                                                     | Priority ranking |      |     |     |
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| African LME's                   | Member states of African LMEs                              | African LME Caucus                                                           | African LME's           |                                                      | The aim of the LME Caucus is to: <ul style="list-style-type: none"> <li>foster closer cooperation between African LMEs</li> <li>provide a platform for the LME projects and inter-governmental commissions to discuss issues of common concern, share experiences and develop strategies to work together.</li> <li>Emphasize the importance of climate change research for the management of natural resources.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <a href="http://iwlearn.net/news/AfricanLMENewsletterAugust2011.pdf">http://iwlearn.net/news/AfricanLMENewsletterAugust2011.pdf</a>                                                                          |                  |      |     |     |
| AU-IBAR. Partners – FAO and WWF | AU member states                                           | Strategic Partnership for Sustainable Fisheries Investment Fund (SPFIF)      | AU-IBAR                 | 2005—2015                                            | The overall objective of SPFIF is to promote sustainable use of fisheries resources and the management of marine ecosystems that support them, with the aim of facilitating poverty eradication and enhancing sustainable income growth of the fishing communities of Sub-Saharan Africa (SSA).<br><br>To achieve the objective, the partnership ensures that country-level projects are consistent with existing international instruments for sustainable fisheries and poverty eradication, such as the FAO Code of Conduct for Responsible Fisheries and the World Summit on Sustainable Development implementation plan. The new projects should complement the existing work of LME programmes and NEPAD as part of the CAADP agenda.                                                                                                                                                                                                                                           | Strategic Partnership for Sustainable Fisheries Investment Fund (SPFIF) project brochure<br><br><a href="http://www.spfif.org">www.spfif.org</a><br><br><a href="http://www.au-ibar.org">www.au-ibar.org</a> |                  |      |     |     |
| Benguela Current Commission     | Angola, Namibia, South Africa                              | Enhancing Climate Change Resilience in the Benguela Current Fisheries System | Multi-trust funds       |                                                      | This regional project aims to address the increased vulnerability of the fisheries of the BCLME as a result of the impacts of climate change and demonstrate that integrated, adaptive, participatory ecosystem approaches to fisheries can help reduce vulnerability to multiple climate change related stresses and disasters. There are five components: <ol style="list-style-type: none"> <li>Understanding vulnerability to climate variability and change for improved adaptation planning within the Benguela Current fisheries system;</li> <li>Piloting of improved climate-resilient fisheries practices;</li> <li>Capacity building and promotion of improved climate-resilient fisheries practices;</li> <li>Mainstreaming fisheries climate change considerations into broader inter-sectoral and climate change policies and programs; and</li> <li>Monitoring and evaluation.</li> </ol> The project will be executed by the BCC with the assistance of FAO and UNDP. | <a href="http://www.thegef.org/gef/project_detail?projID=5113">www.thegef.org/gef/project_detail?projID=5113</a>                                                                                             |                  |      |     |     |
| DFID-IDRC                       | Benin, Burkina Faso, Cameroon, Cape Verde, Central African | CCAA programme (Climate Change                                               | DFID and IDRC           | Ended March 2012                                     | The Climate Change Adaptation in Africa (CCAA) research and capacity development program was launched in 2006 as a jointly funded initiative of IDRC and the United Kingdom's Department for International Development (DFID). It was hosted by IDRC in Ottawa and there were three regional offices                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                              |                  |      |     |     |

| Implementing ORGANIZATION(s) | COUNTRIES                                                                                                                                                                                                                                                                                                                                    | NAME OF PROJECT                                                 | Funding ORGANIZATION(s) | PROJECT PERIOD<br>Including past, current and future | AIM/KEY ACTIVITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | SOURCE DOCUMENT/ WEBSITE                                                       | Priority ranking |      |     |     |
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|                              | Republic, Chad, DRC, E. Guinea, Gabon, Gambia, Ghana, Guinea-Bissau, Guinea, Cote d'Ivoire, Liberia, Mali, Niger, Nigeria, Congo, São Tomé and Príncipe, Senegal and Togo                                                                                                                                                                    | Adaptation in Africa)                                           |                         |                                                      | in Africa.<br><br><b>Nigeria</b> – strengthening the capacity of smallholder farmers to adapt to climate change through radio drama. The objective is to support the production and test a 26-episode radio drama featuring climate adaptation content. <a href="http://www.preventionweb.net/files/25763_nigeria.pdf">www.preventionweb.net/files/25763_nigeria.pdf</a><br><br>A number of regional projects were funded through CCAA. These include, but are not limited to: APPECAO, CapaSids, Resilience and the African smallholder: Enhancing the capacities of communities.                                                                                                                                                                                            |                                                                                |                  |      |     |     |
| FAO                          | Burundi, DRC, Tanzania and Zambia                                                                                                                                                                                                                                                                                                            | Linking climate change and fisheries in the African Great Lakes | GEF SCCF; AfDB          |                                                      | The immediate objective was to make available the information on climate change that is hidden in databases at large regional and international research centres and to consider its implications for fisheries in the Great Lakes (Malawi, Tanganyika, Victoria) and those dependent on them for their livelihoods.                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                |                  |      |     |     |
| FAO                          | Angola, Benin, Cameroon, Cape Verde, Comoros, Congo, DR Congo, Cote d'Ivoire, E. Guinea, Gabon, Gambia, Ghana, Guinea Bissau, Guinea, Kenya, Liberia, Madagascar, Maldives, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Nigeria, São Tomé and Príncipe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, Tanzania and Togo | EAF-Nansen                                                      | NORAD                   |                                                      | The long-term objective of the EAF-Nansen project is to strengthen regional and country specific efforts to reduce poverty and create conditions to assist in the achievement of food security. It encourages the development of sustainable fisheries management regimes through the application of the ecosystem approach to fisheries in a number of developing countries at global level, with an early emphasis on Sub-Saharan Africa.<br><br>The immediate objectives of the project are to provide the fisheries research institutions and management administrations in the participating countries with additional knowledge on their ecosystems for use in planning and monitoring, and to further the acceptance and application of the key principles of the EAF. | <a href="http://www.eaf-nansen.org/nansen/en">www.eaf-nansen.org/nansen/en</a> |                  |      |     |     |

| Implementing ORGANIZATION(s)                          | COUNTRIES                                 | NAME OF PROJECT                                                    | Funding ORGANIZATION(s) | PROJECT PERIOD<br>Including past, current and future | AIM/KEY ACTIVITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | SOURCE DOCUMENT/ WEBSITE                                                                                                                                                                                                                                                                                           | Priority ranking |      |     |     |
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| NEPAD and FAO                                         | Africa                                    | Nepad FAO Fish Programme (NFFP)                                    | SIDA                    | Current                                              | Component C of the Programme deals with:<br>1) Promoting policy coherence and cross-linkages between DRM/CCA and fisheries/aquaculture in general;<br>2) Providing technical support for fisheries and aquaculture to the NAPA process;<br>3) Supporting local, national and regional policy linkages and two-way communication through pilot activities for the development and implementation of DRM and CCA plans in a participatory and integrated manner in selected fishing/fish farming communities and countries<br>4) Assisting in establishing networks and coordinating other actions in DRM/CCA and fisheries/aquaculture at the national and regional levels<br>5) Facilitating the participation of African stakeholders and the taking into account of regional interests with regard to DRM and CCA and fisheries and aquaculture in international processes. |                                                                                                                                                                                                                                                                                                                    |                  |      |     |     |
| FAO                                                   | Global                                    | Framework Programme on Disaster Risk Reduction (FP DRR)            | N/A                     | Planned                                              | The intent is to help generate greater understanding, interest and action in disaster risk reduction for food and nutrition security.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Resilient livelihoods: Disaster Risk Reduction for food and nutrition security. An FAO Framework Programme. Sept 2011.                                                                                                                                                                                             |                  |      |     |     |
| FAO, with cooperation from NEPAD                      | Sub-Saharan Africa                        | FAO Special Programme on Aquaculture Development in Africa (SPADA) |                         |                                                      | SPADA represents the FAO Fisheries and Aquaculture Department's strategic approach to accelerate aquaculture development in its member countries in Africa. This is in view of the high priority to aquaculture development given by the 27th Session of the FAO Committee of Fisheries and the 2007 High-Level Event on Aquaculture (which took place during the 32nd FAO Conference).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <a href="http://www.fao.org/uploads/tx_chcforum/SPADAv6[jm]-28Jul08[g].pdf">www.fao.org/uploads/tx_chcforum/SPADAv6[jm]-28Jul08[g].pdf</a>                                                                                                                                                                         |                  |      |     |     |
| Great Lakes Centre for Culture, Peace and Development | Burundi, DRC, Rwanda, Tanzania and Uganda | Great Lakes Centre for Culture, Peace and Development (GLCPD)      | -                       |                                                      | Training farmers on climate change adaptation and poverty reduction, climate change, enhancing food security by easing trade boundaries in Central Africa (Rwanda, Burundi and East DR Congo).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Survey response<br><br><a href="http://africaprosperity.com/index.php/region/east-africa/rwanda/region/items/view/Great-Lakes-Center-for-Culture-Peace-and-Development">http://africaprosperity.com/index.php/region/east-africa/rwanda/region/items/view/Great-Lakes-Center-for-Culture-Peace-and-Development</a> |                  |      |     |     |

| Implementing ORGANIZATION(s)                                | COUNTRIES                                                                  | NAME OF PROJECT                                                         | Funding ORGANIZATION(s) | PROJECT PERIOD<br>Including past, current and future | AIM/KEY ACTIVITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | SOURCE DOCUMENT/ WEBSITE                                                                                                                        | Priority ranking |      |     |     |
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| Implemented through universities in participating countries | Ethiopia, Kenya, Madagascar, Mozambique, South Africa, Tanzania and Uganda | Periperi U                                                              | USAid                   | 2006 – on going                                      | Periperi U is a platform for university partnership to reduce disaster risks in Africa. It stands for “Partners Enhancing Resilience to People Exposed to Risks” – with a special focus on advancing university action on risk and vulnerability reduction in Africa. Aims:<br>1) Develop active teaching and training, research and policy advocacy capacity in Africa on disaster risk and vulnerability reduction.<br>2) Build capacity to provide at least 2 to 4 short courses annually in disaster risk management, vulnerability reduction, food/livelihood security or subjects relevant to risk and vulnerability reduction in their country.<br>3) Develop either undergraduate and/or graduate programmes related to reducing or managing the risk and vulnerabilities in relevant countries..<br>4) Generate applied research outputs related to risks and vulnerabilities that increase local understanding and improve the risk management. | <a href="http://riskreductionafrica.org/en/rra-ddr-per/rra-whatisperiperi">http://riskreductionafrica.org/en/rra-ddr-per/rra-whatisperiperi</a> |                  |      |     |     |
| Indian Ocean Commission                                     | Comoros, Madagascar, Mauritius and Seychelles                              | SmartFish-Sustainable Aquaculture development promoted (Output 5M3.2.4) | IOC                     |                                                      | The SmartFish Programme aims at contributing to an increased level of social, economic and environmental development and deeper regional integration in the ESA-IO region through improved capacities for the sustainable exploitation of fisheries resources. As part of other activities relating to improved food security in the region, the project seeks to improve knowledge of and preparedness for climate change impacts on the fisheries.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Project information from SmartFish<br><br><a href="http://www.smartfish-coi.org/">www.smartfish-coi.org/</a>                                    |                  |      |     |     |
| Indian Ocean Organization                                   | Comoros, Madagascar, Mauritius and Seychelles                              | Acclimate                                                               | Indian Ocean Commission |                                                      | Complete as of December 2012, this four-year project of the IOC focused on climate change adaptation in the IOC region. The culmination of the project’s work – a regional strategy for climate change adaptation – was adopted by the IOC’s 28th Council of Ministers on 17 January 2013. Project findings suggest that in order to help fisheries of the IOC region adapt to climate change, more must be done to reduce other harmful impacts on fisheries, including IUU fishing and destructive fishing methods. Recommended priority actions for future studies and projects include: improved understanding of the impacts of climate change on the fisheries (specifically on species behaviour), developing aquaculture and marine habitat conservation.                                                                                                                                                                                         |                                                                                                                                                 |                  |      |     |     |

| Implementing ORGANIZATION(s)                                                                      | COUNTRIES                                   | NAME OF PROJECT                                                                                                                    | Funding ORGANIZATION(s)                                     | PROJECT PERIOD<br>Including past, current and future | AIM/KEY ACTIVITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | SOURCE DOCUMENT/ WEBSITE                                                                                                                                                 | Priority ranking |      |     |     |
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| Institute of Aquaculture, Stirling University                                                     | All of sub-Saharan Africa                   | Sustainable Aquaculture Research Networks in Sub-Saharan Africa (SARNISSA) – A new era for strengthening African Aquaculture       | World Fish Centre                                           |                                                      | SARNISSA is an online discussion forum and acts as a means of developing dialogue from the now over 2 000 registered members comprising a wide range of stakeholder from policy level to small-scale producers, NGOs, academics, markets, IGOs, etc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Survey response<br><br>www.sarnissa.org/tiki-index.php                                                                                                                   |                  |      |     |     |
| Lake Victoria Region Local Authorities Cooperation                                                | Kenya, Tanzania and Uganda                  | Envisioning the mainstreaming of climate change mitigation and adaptation in Lake Victoria Local Authorities' development planning | Climate and Development Knowledge network – Innovation Fund |                                                      | <p>This CDKN Innovation Fund project aims to devise a road map for mainstreaming climate change into the development strategies and plans of local authorities using a collaborative innovation process. The project uses an inclusive and participatory process involving multiple and diverse stakeholders. The first level of stakeholders has been drawn from the LVRLAC network and includes local authorities. The second level of stakeholders has been drawn from local universities, civil society, private sector and the media.</p> <p>National consultations were held in Kenya, Tanzania and Uganda in March 2012 to identify the most critical climate change issues in each country, progress with mainstreaming within the local authorities of Lake Victoria and identifying the knowledge gaps and critical stakeholders for mainstreaming into local planning mechanisms.</p>                                                                                                                                                                        | http://cdkn.org/project/envisioning-the-mainstreaming-of-climate-change-mitigation-and-adaptation-in-lake-victoria-local-authorities-development-planning/?loclang=en_gb |                  |      |     |     |
| Office of the Regional Executive Secretary for the Lake Victoria Environmental Management Project | Burundi, Kenya, Rwanda, Tanzania and Uganda | Transboundary Diagnostic Analysis and Strategic Action Program Development for the Lake Victoria Basin                             | GEF Trust Fund                                              |                                                      | <p>The objective of the project is to undertake a Transboundary Diagnostic Analysis (TDA) of the Lake Victoria Basin in order to identify a Strategic Action/Investment Programme (SAP) and address key environmental issues and poverty alleviation by promoting sustainable economic growth. The SAP will be endorsed by the Regional Policy Steering Committee (RPSC) and the Ministerial Committee on Lake Victoria Development Programme (CLVDP), with appropriate involvement of Rwanda and Burundi.</p> <p>Activities will include the preparation of survey papers to summarize existing scientific findings and available data from the first phase of the Lake Victoria Environmental Management Project (LVEMP) and other sources on topics such as: fisheries, water hyacinth, biodiversity, phosphorus, toxic substances, persistent chemicals, pesticide residues, blue-green algae, nitrogen and land use. Numerous public consultations will be undertaken under this project and two regional workshops will be convened. The work on the TDA will</p> | www.thegef.org/gef/project_detail?projID=2405                                                                                                                            |                  |      |     |     |



| Implementing ORGANIZATION(s)                                                                                                | COUNTRIES                                                                                                                                         | NAME OF PROJECT                                                      | Funding ORGANIZATION(s)                                                                    | PROJECT PERIOD<br>Including past, current and future | AIM/KEY ACTIVITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | SOURCE DOCUMENT/ WEBSITE                                                                                                                                                                                               | Priority ranking |      |     |     |
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|                                                                                                                             |                                                                                                                                                   |                                                                      |                                                                                            |                                                      | include an analysis of key environmental issues in Burundi and Rwanda that affect the health of the Lake Basin Ecosystem (see Annex 1 on how key subregional and regional initiatives complement each other).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                        |                  |      |     |     |
| OneWorld Sustainable Investments                                                                                            | Angola, Botswana, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe | The Regional Climate Change Programme                                | DFID and SIDA                                                                              |                                                      | <p>The Regional Climate Change Programme (RCCP) was established to help Southern Africa adapt to climate change across political borders, while simultaneously respecting the sovereignty of individual countries when planning adaptation measures. The objectives are to:</p> <ol style="list-style-type: none"> <li>1) Examine possible climate change responses and build the evidence base. The region's relatively undiversified economies are dependent on rain-fed agriculture and the capacity to respond to the additional stresses of climate change is low.</li> <li>2) Strengthen the region's ability to access climate finance and establish regional and national sources of finance.</li> <li>3) Facilitate the strengthening of the region's voice, through regional integration on international climate change platforms. A Southern African voice is critically needed in negotiations about how the climate finance architecture is to evolve, the agenda for adaptation and what the developed and developing world decide to do about limiting global emissions.</li> </ol> | <a href="http://www.oneworldgroup.co.za/index.php?option=com_wrapper&amp;view=wrapper&amp;Itemid=364&amp;lang=en">www.oneworldgroup.co.za/index.php?option=com_wrapper&amp;view=wrapper&amp;Itemid=364&amp;lang=en</a> |                  |      |     |     |
| PaCFA<br><br>The Task Force is under the leadership of FAO with participation from UNEP, IOC, UNDP, CBD and the World Bank. | Global                                                                                                                                            | Global Partnership Climate Change, Fisheries and Aquaculture (PaCFA) | World Bank                                                                                 |                                                      | The goal of PaCFA is to support the process of the United Nations Framework Convention on Climate Change (UNFCCC) in response to the need for concerted action on fisheries, aquaculture and climate change. It lays the groundwork for a coordinated response from the fisheries and aquaculture sector to climate change, notably through a strategic approach to maintain or enhance the health and resilience of global oceans and waters, and strengthening the capacity of dependent people and communities. PaCFA is a UN-Oceans global task force.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <a href="http://www.climatefish.org">www.climatefish.org</a>                                                                                                                                                           |                  |      |     |     |
| Programme under the International Coral Reef Initiative<br><a href="http://www.icriforum.org/">www.icriforum.org/</a>       | Comoros, Kenya, Madagascar, Mauritius, Mozambique and Seychelles                                                                                  | CORDIO East Africa                                                   | Supported by SIDA; Government of Finland; Dutch Trust Fund of the World Bank; IUCN and WWF |                                                      | <p>CORDIO East Africa is a coordinated project that has research participants from various countries in the central and western Indian Ocean. The aim of the project is to evaluate and respond to the degradation of the coral reefs across the region. Current CORDIOEA projects focus on determining the following:</p> <ol style="list-style-type: none"> <li>1) The biological impact of coral degradation as an effect of bleaching and other disturbances, and the long-term prospects for recovery;</li> <li>2) The socioeconomic consequence of reef degradation and alternatives for alleviating these through the introduction, management and furtherance of other forms of livelihood; and</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                  | <a href="http://www.cordio.org/">www.cordio.org/</a>                                                                                                                                                                   |                  |      |     |     |

| Implementing ORGANIZATION(s)                                                                                                                                                                                                       | COUNTRIES                                                                               | NAME OF PROJECT                                           | Funding ORGANIZATION(s) | PROJECT PERIOD<br>Including past, current and future | AIM/KEY ACTIVITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | SOURCE DOCUMENT/ WEBSITE                                                                                                                                                                                        | Priority ranking |      |     |     |
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|                                                                                                                                                                                                                                    |                                                                                         |                                                           |                         |                                                      | 3) The possibilities for rehabilitation and restoration of the reefs to hasten both ecological and economic recovery.<br><br><b>Kenya</b> - Climate Change Adaptation Mechanisms for SSF in Coastal areas of Kenya. Identifying the adaptation mechanism and document. Provide training for BMU.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                 |                  |      |     |     |
| Self-governing. Works with OKACOM                                                                                                                                                                                                  | Angola, Botswana and Namibia                                                            | Southern African Regional Environmental programme (SAREP) | USAID                   |                                                      | Supporting the Permanent Commission for the Okavango River Basin to better manage the Basin. SAREP is a USAID-funded project that follows on from the Integrated River Basin Management project (IRBM) which ran until September 2008 – under an agreement with the SADC Water Sector.<br><br>SAREP is working with OKACOM and regional counterparts to improve transboundary natural resource management in the Okavango River Basin. Its technical approach derives from critical and creative thinking about the political economy of the Southern Africa water and natural resources sector; it leverages best practices in community-based natural resource management and capacity building for the supply of safe water and sanitation; and anticipates the increasing need for effective responses to climate-related disasters and water-centred conflicts. | Survey response<br><br><a href="http://www.okacom.org/okacoms-work/partners-and-projects/projects/partner-projects/sarep">www.okacom.org/okacoms-work/partners-and-projects/projects/partner-projects/sarep</a> |                  |      |     |     |
| The Network is coordinated by the ANAF Regional Centre located in Uganda, with the support of the CIFAA Secretariat in Accra and the technical cooperation of FAO-FIRA. All member countries have an assigned National Coordinator | West African countries and Kenya, Mozambique, South Africa, Tanzania, Uganda and Zambia | Aquaculture Network for Africa                            | -                       |                                                      | The Aquaculture Network for Africa (ANAF) is a regional aquaculture information system consisting of a website that:<br>1) Facilitates the exchange of information between the ANAF member countries;<br>2) Assists the private and public sectors to gain quick and easy access to information required for decision-making, both on specific technical matters and for the design and assessment of new aquaculture projects; and<br>3) Responds to increasing public demand for up to date information concerning aquaculture at national and regional level.                                                                                                                                                                                                                                                                                                     | <a href="http://www.anafaquaculture.org/index.php?id=about_us0">www.anafaquaculture.org/index.php?id=about_us0</a>                                                                                              |                  |      |     |     |
| UN Economic Commission for Africa*                                                                                                                                                                                                 | Angola, Botswana, Burundi, Comores, Djibouti, Eritrea, Ethiopia, Kenya,                 | Africa Climate Policy Centre                              |                         | Estd. 2010                                           | The African Climate Policy Centre (ACPC) was established in 2010 to serve as the knowledge-management and policy-facilitation arm of the Climate for Development (ClimDev) Africa Programme.<br><br>The three key areas of ACPC work are:<br>1) knowledge generation, sharing and networking;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <a href="http://new.uneca.org/acpc/acpcinbrief.aspx">http://new.uneca.org/acpc/acpcinbrief.aspx</a>                                                                                                             |                  |      |     |     |

| Implementing ORGANIZATION(s)              | COUNTRIES                                                                                                                                              | NAME OF PROJECT                                                                               | Funding ORGANIZATION(s) | PROJECT PERIOD<br>Including past, current and future | AIM/KEY ACTIVITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | SOURCE DOCUMENT/ WEBSITE                                                                                                                                                     | Priority ranking |      |     |     |
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|                                           | Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Rwanda, Seychelles, South Africa, Sudan, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe |                                                                                               |                         |                                                      | 2) advocacy and consensus building; and<br>3) advisory services and technical cooperation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                              |                  |      |     |     |
| UNDP                                      | Comoros, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, Somalia, South Africa and Tanzania                                                      | Agulhas and Somali Large Marine Ecosystems project (ASCLME)                                   | GEF Trust Fund          |                                                      | The ASCLME project is part of a multi-project, multi-agency programme – the Agulhas and Somali Current Large Marine Ecosystem Programme (ASCLMEs) - which aims to institutionalize cooperative management of the two LMEs. The ASCLMEs Programme is implemented in a phased way, so that a knowledge base is built progressively and technical and management capabilities are strengthened at the regional scale so as to address transboundary environmental concerns. The Programme's overall objectives are:<br><br>1) to acquire sufficient baseline data to support an ecosystem-based approach to the management of the two LMEs;<br>2) to produce a TDA and SAP for both the Agulhas Current and the Somali Current LMEs.                                                                                                                                                                                                                                                                                                                                                                                    | <a href="http://www.asclme.org/">www.asclme.org/</a><br><br><a href="http://www.thegef.org/gef/project_detail?projID=1462">www.thegef.org/gef/project_detail?projID=1462</a> |                  |      |     |     |
| UNDP and respective government ministries | Ethiopia, Malawi, Uganda and Zambia                                                                                                                    | Strengthening Climate Information and Early Warning Systems for Climate Resilient Development | GEF LDCF                |                                                      | The enhanced capacity of national hydro-meteorological services (NHMS) and related environmental institutions to monitor extreme weather and climate change is an essential factor in adapting to changing conditions. Projects within this signature programme are already enhancing the capacity for risk-responsive planning and development plans at various levels of governance.<br><br>The efficient and effective use of climate-related information is essential to helping institutions build capacity to service needs across various sectors, including land-use planning, agriculture and power generation. Furthermore, these capacities will increase the ability of the national early warning networks to warn of extreme climate events, thereby strengthening disaster preparedness systems that will ultimately help the most vulnerable populations. The goal is to have climate change information permeate the entire decision-making process. All components of an implemented EWS should eventually be able to function as an integrated system within – and sometimes between – countries. | <a href="http://www.undp-alm.org/ews-and-climate-resilient-development">www.undp-alm.org/ews-and-climate-resilient-development</a>                                           |                  |      |     |     |

| Implementing ORGANIZATION(s) | COUNTRIES                                                                                                                                                                                                                               | NAME OF PROJECT                                                | Funding ORGANIZATION(s)            | PROJECT PERIOD<br>Including past, current and future | AIM/KEY ACTIVITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | SOURCE DOCUMENT/ WEBSITE                                                                                       | Priority ranking |      |     |     |
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| UNDP and UNEP                | Ethiopia, Rwanda, Malawi, Mozambique and Seychelles                                                                                                                                                                                     | Climate Change Adaptation and Development Initiative (CC-DARE) | Danish ministry of Foreign Affairs | 2008 – 2011                                          | <p>The joint UNEP-UNDP programme CC-DARE provided demand driven, flexible and rapid financial and technical support to 15 sub-Saharan countries. The emphasis of CC-DARE support was on short-term (three to six month) initiatives that contributed towards addressing key gaps for national climate change adaptation. The support was intended to improve the ability of sub-Saharan African countries to remove barriers and create opportunities for integrating climate change adaptation into national development planning and decision-making frameworks. Three main types of activities were undertaken through the programme: country level activities, regional training courses and national and regional workshops to communicate project results and share experiences and lessons learned.</p> <p><b>Benin</b> – Reinforcing the capacities of the municipalities of the Alibori District in order to better adapt to climate change. It consists of seven training programmes in six municipalities and radio programmes on climate change. <a href="http://www.preventionweb.net/files/25663_benin.pdf">www.preventionweb.net/files/25663_benin.pdf</a></p> | <a href="http://ccdare.org/">http://ccdare.org/</a>                                                            |                  |      |     |     |
| UNDP                         | Angola, Botswana, Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Rwanda, Seychelles, Somalia, Tanzania, Uganda, Lesotho, Namibia, South Africa, Sudan, Swaziland, Zambia and Zimbabwe | Adaptation Learning Mechanism                                  | GEF; World Bank                    |                                                      | <p>Adaptation to climate change is a growing priority for development agencies, governments and vulnerable communities. However, capacity and awareness are often limited and experiences have yet to be widely shared. In an effort to address existing adaptation knowledge needs, the UNDP and other agency partners launched the Adaptation Learning Mechanism (ALM) in 2007. UNDP is facilitating the ALM in close partnership with the UN Framework Convention on Climate Change (UNFCCC), UNEP, the World Bank and specialized UN agencies, including FAO.</p> <p>The ALM represents a collaborative, global learning process, with leadership, facilitation and strong participation by Southern institutions. Seeking to provide stakeholders with a common platform for sharing and learning, the ALM bridges knowledge gaps by bringing relevant knowledge and stakeholders together to exchange information, experiences, and expertise.</p>                                                                                                                                                                                                                      | <a href="http://www.adaptationlearn.net/about">www.adaptationlearn.net/about</a>                               |                  |      |     |     |
| UNDP                         | Kenya, Mozambique, Seychelles, South Africa (and other countries in                                                                                                                                                                     | Development and Protection of the Coastal and Marine           | GEF Trust fund                     | Completed 2002                                       | <p>The overall goal of this project was to assist sub-Saharan African countries to achieve sustainable management of their coastal and marine environment and resources by:</p> <ol style="list-style-type: none"> <li>1) Identifying areas, sites or living resources of regional and global significance that are suffering measurable degradation (i.e. "hot-</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <a href="http://www.thegef.org/gef/project_detail?projID=849">www.thegef.org/gef/project_detail?projID=849</a> |                  |      |     |     |

| Implementing ORGANIZATION(s)                                         | COUNTRIES                                                                                                                                                                              | NAME OF PROJECT                                                                                                                     | Funding ORGANIZATION(s)                  | PROJECT PERIOD<br>Including past, current and future | AIM/KEY ACTIVITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | SOURCE DOCUMENT/ WEBSITE                                                                                                                                                                                                                                          | Priority ranking |      |     |     |
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|                                                                      | Western and Central Africa)                                                                                                                                                            | Environment in Sub-Saharan Africa                                                                                                   |                                          |                                                      | spots");<br>2) Determining the sources/causes of this degradation to provide a basis for calculating incrementally at regional and extra-regional scales;<br>3) Identifying areas, sites and resources of regional significance that , are threatened with future degradation;<br>4) Determining, through root-cause analysis, the fundamental causes of the damage or threat posed; and designing a programme of interventions addressing problems of regional priority.                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                   |                  |      |     |     |
| UNIDO                                                                | Angola, Benin, Cameroon, Congo, DR of the Congo, Cote d'Ivoire, Gabon, Ghana, Equatorial Guinea, Guinea, Guinea-Bissau, Liberia, Nigeria, Sao Tome and Principe, Sierra Leone and Togo | Combating Living Resource Depletion and Coastal Area Degradation in the Guinea Current LME through Ecosystem-based Regional Actions | GEF Trust Fund                           | Completed 2011                                       | A project goal was to build the capacity of Guinea Current countries to work jointly with other nations, regions and GEF projects in West Africa to define and address transboundary priority environmental issues within the framework of their existing responsibilities under the Abidjan Convention and its Regional Seas program. The long-term development goals of the project were to:<br>1) Recover and sustain depleted fisheries;<br>2) Restore degraded habitats; and<br>3) Reduce land- and ship-based pollution by establishing a regional management framework for sustainable use of living and non-living resources in the GCLME.                                                                                                                                                                                                   | <a href="http://www.thegef.org/gef/project_detail?projID=1188">www.thegef.org/gef/project_detail?projID=1188</a>                                                                                                                                                  |                  |      |     |     |
| University of Zimbabwe; International Food Policy Research Institute | Ghana, Mozambique, Tanzania, Uganda, Zambia and Zimbabwe                                                                                                                               | Resilience and the African Smallholder: Enhancing the capacities of communities                                                     | DFID and IDRC through the CCAA programme | 2007 –2011                                           | This project aimed to enhance the ability of households, communities and relevant institutions to respond to changing circumstances with a view to reducing future threats to food security and environmental integrity. It worked with farmers to identify improved farming technologies, translating the results into action plans at the appropriate institutional level, whether local or national.<br><br>The project also promoted adaptation among vulnerable populations by developing comprehensive systems for assessing global changes and the impacts of these changes across disaggregated systems, groups, and factors influencing an initial state of vulnerability. It also provided regional organizations, policy-makers and farmers in sub-Saharan Africa with tools to identify and implement appropriate adaptation strategies. | <a href="http://www.preventionweb.net/files/25699_ghana.pdf">www.preventionweb.net/files/25699_ghana.pdf</a><br><br><a href="http://web.idrc.ca/en/ev-118881-201_104140-1-IDRC_ADM_INFO.html">http://web.idrc.ca/en/ev-118881-201_104140-1-IDRC_ADM_INFO.html</a> |                  |      |     |     |

| Implementing ORGANIZATION(s) | COUNTRIES                                   | NAME OF PROJECT                                                                                                                                                           | Funding ORGANIZATION(s) | PROJECT PERIOD<br>Including past, current and future | AIM/KEY ACTIVITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | SOURCE DOCUMENT/ WEBSITE                                                                                         | Priority ranking |      |     |     |
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| UNOPS                        | Namibia and Niger                           | Community-based Adaptation (CBA) Programme                                                                                                                                | GEF Trust Fund          |                                                      | <p>The goal of the Community-Based Adaptation (CBA) Programme is to reduce vulnerability and increase adaptive capacity to the adverse effects of climate change in the focal areas in which the GEF works.</p> <p>The CBA programme will support the implementation of between 80 and 200 community-based adaptation projects, designed to enhance the adaptive capacity of participating communities, in 10 countries (Bangladesh, Bolivia, Guatemala, Jamaica, Kazakhstan, Morocco, Namibia, Niger, Samoa and Vietnam). Where possible, the activities laid out in the NAPAs will be used to identify potential vulnerable regions.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <a href="http://www.thegef.org/gef/project_detail?projID=2774">www.thegef.org/gef/project_detail?projID=2774</a> |                  |      |     |     |
| UNOPS                        | Botswana, Lesotho, Namibia and South Africa | Development and Adoption of a Strategic Action Program for Balancing Water Uses and Sustainable Natural Resource Management in the Orange-Senqu River Transboundary Basin | GEF LDCF                | PPG approved August 2012                             | <p>The overall goal of the project is to improve the management of the Orange-Senqu River Basin's transboundary water resources through Integrated Water Resource Management (IWRM) approaches that remediate threats and root causes.</p> <p>The project will:</p> <ul style="list-style-type: none"> <li>• Develop mechanisms to ensure the cooperative and sustainable use of the land and water resources of the Orange River Basin;</li> <li>• Develop regionally based and agreed upon short-, medium- and long-term management objectives and strategies for the river basin;</li> <li>• Build capacity for adaptive management approaches to river basin management;</li> <li>• Develop and implement measures to sustain and enhance overall environmental health within the basin;</li> <li>• Create a comprehensive stakeholder involvement programme;</li> <li>• Strengthen regionally based institutions, particularly ORASECOM, to ensure the long-term sustainability of interventions.</li> </ul> <p>The project will create synergies with, and build upon a range of initiatives being undertaken in the Basin by the four countries and those of donor bodies.</p> | <a href="http://www.thegef.org/gef/project_detail?projID=2701">www.thegef.org/gef/project_detail?projID=2701</a> |                  |      |     |     |
| UNOPS                        | Angola, Namibia and South Africa            | Implementation of the Benguela Current LME Strategic Action Programme for Restoring                                                                                       | GEF/UNDP                | 2009 –2013                                           | Established in 2007, the Benguela Current Commission has a mandate from Angola, Namibia and South Africa to promote the integrated management, sustainable development and protection of the Benguela Current Large Marine Ecosystem (BCLME). This project aimed to implement a SAP for the development and adoption of an effective transboundary LME management structure, primarily addressing fish stock and fisheries rejuvenation and sustainability, supported and made operational by functioning and sustainable transboundary and national level institutions, and guided by a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <a href="http://www.benguelacc.org/">www.benguelacc.org/</a>                                                     |                  |      |     |     |

| Implementing ORGANIZATION(s)                                                                                                                                                                                       | COUNTRIES                     | NAME OF PROJECT                                                                                                             | Funding ORGANIZATION(s)                                                                     | PROJECT PERIOD<br>Including past, current and future | AIM/KEY ACTIVITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | SOURCE DOCUMENT/ WEBSITE                                                                                   | Priority ranking |      |     |     |
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|                                                                                                                                                                                                                    |                               |                                                                                                                             |                                                                                             |                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                            | Fisheries        | Aqua | CCA | DRM |
|                                                                                                                                                                                                                    |                               | Depleted Fisheries and Reducing Coastal Resources Degradation                                                               |                                                                                             |                                                      | series of lessons and best practices. Such lessons and best practices are intended to form the basis of replicable procedures to secure management strategies in similar global LMEs.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                            |                  |      |     |     |
| World Bank                                                                                                                                                                                                         | Ethiopia and Mozambique       | Economics of Adaptation to Climate Change                                                                                   | Netherlands, Switzerland and the UK                                                         | 2008 –2010                                           | The two specific objectives of the study were to:<br>1) Develop a global estimate of adaptation costs to inform the international community's efforts to tailor support and provide new and additional resources to help vulnerable developing countries meet adaptation costs; and<br>2) Support decision makers in developing countries to better evaluate and assess the risks posed by climate change and to better design strategies to adapt to climate change.                                                                                                                                                                                                                                                                                                                                                                                                            | www.preventionweb.net/files/25699_ghana.pdf                                                                |                  |      |     |     |
| WorldFish Centre                                                                                                                                                                                                   | Malawi, Mozambique and Zambia | Sustainable water usage in the Chinyanja Triangle                                                                           | WorldFish Centre/ CGIAR                                                                     |                                                      | Project researchers will develop a framework for the integration of aquaculture and small-scale irrigation systems into diversified and sustainable food production schemes. They also hope to improve the capacity of stakeholders to adapt to the droughts and floods that are expected to be increasingly frequent in the face of climate change. In so doing, they will contribute to the increased food security and well-being of disadvantaged sub-Saharan rural households.                                                                                                                                                                                                                                                                                                                                                                                              | Survey response<br><br>www.worldfishcenter.org/our-research/ongoing-projects/chinyanja-triangle            |                  |      |     |     |
| WorldFish Centre; National Fisheries Resources Research Institute (NaFIRRI); Uganda Source of the Nile Fish Ltd.; Kenya Marine and Fisheries Research Institute (KMFRI); and Tanzania Fisheries Research Institute | Uganda, Kenya and Tanzania    | Building public private sector partnership to enhance the productivity and competitiveness of aquaculture in the EAC region | Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) |                                                      | The project intends to:<br>1) Improve understanding of the aquaculture value chains;<br>2) Improve fish seed production through production guidelines, genetic improvement and optimal seed sizes for farmers;<br>3) Promote the use of more cost-effective commercial feeds by fish farmers;<br>4) Improve fish production, e.g. through development of better tank-based catfish farming technologies;<br>5) Enable equitable development of regional capacity to participate in aquaculture value chains;<br>6) Improve marketing through: development and promotion of value added products (e.g. smoked fish) targeted at poor consumers and trials of ICT-based market information systems;<br>7) Improve environmental management of aquaculture, especially that of cages;<br>8) Disseminate information on technologies and practices for all aquaculture value chains. | www.worldfishcenter.org/our-research/ongoing-projects/african-aquaculture-development-beyond-the-fish-farm |                  |      |     |     |

## 7.8 National initiatives and interventions in fisheries and aquaculture in respect to climate change and disasters

The sections below provide detail on national fisheries and aquaculture initiatives and programmes relevant to CCA and/or DRM and CCA and/or DRM initiatives and programmes relevant to fisheries and aquaculture.

| Project period  |  | Priority ranking of level of engagement |  |
|-----------------|--|-----------------------------------------|--|
| Past project    |  | No engagement of subject area           |  |
| Current project |  | Some engagement of subject area         |  |
| Planned project |  | Core focus on subject area              |  |

| COUNTRY | NAME OF PROJECT                                                                                                                                                                  | Funding ORGANIZATION (s) | Implementing ORGANIZATION(s)                                                                                | PROJECT PERIOD- Including past, current and future | AIM/KEY ACTIVITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | SOURCE DOCUMENT/ WEBSITE                                                                                                                                                                                                                 | Priority ranking |      |     |     |
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|         |                                                                                                                                                                                  |                          |                                                                                                             |                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                          | Fisheries        | Aqua | CCA | DRM |
| Comoros | Adapting water resource management in Comoros to increase capacity to cope with climate change.                                                                                  | GEF LDCF                 | National Direction of Environment and Forests, under the Ministry of Agriculture, Fisheries and Environment | Approved 2011                                      | The goal of the project is to help vulnerable communities adapt to climate change. The project objective is to reduce the risk that climate change poses for lives and livelihoods as a result of its impacts on water resources in Comoros. The project will work on the three islands comprising Comoros.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <a href="http://www.thegef.org/gef/project_detail?projID=3857">www.thegef.org/gef/project_detail?projID=3857</a>                                                                                                                         |                  |      |     |     |
| Comoros | Coastal Resources Co-management for Sustainable Livelihood                                                                                                                       | World Bank               | Government of the Union of the Comoros, Direction Nationale des Ressources Halieutiques                     | 2011– 2015                                         | No details given.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <a href="http://www.worldbank.org/projects/P125301/comoros-coastal-resources-co-management-sustainable-livelihood?lang=en">www.worldbank.org/projects/P125301/comoros-coastal-resources-co-management-sustainable-livelihood?lang=en</a> |                  |      |     |     |
| Comoros | Development of a national network of terrestrial and marine protected areas representative of the Comoros' unique natural heritage and co-managed with local village communities | GEF Trust Fund           | Ministry of Production, Energy, Environment, Industry and Handicraft (MPEEIH)                               | Submitted August 2012 – Council approved.          | Project objective: to establish an expanded and functional system of protected areas (PAs) in the Union of Comoros, representative of the country's biodiversity endowment and with good prospects for a sustainable future.<br><br>Climate change is expected to impact biodiversity in Comoros in the medium- to long-term. A potential long-term solution for Comoros is to establish an effectively managed protected area (PA) system, composed of both PAs and MPAs. The system should be representative of the country's biodiversity and provide significant coverage for unprotected ecosystems and a safe haven for threatened species. The sustainability of this system also needs to be secured. The Baseline project contributes towards this long-term solution and underpins the GEF investment. It also consists of both national investments and commitments and donor financed interventions. | <a href="http://www.thegef.org/gef/project_detail?projID=5062">www.thegef.org/gef/project_detail?projID=5062</a>                                                                                                                         |                  |      |     |     |



| COUNTRY  | NAME OF PROJECT                                                                                                                                                   | Funding ORGANIZATION (s)                                | Implementing ORGANIZATION(s)                           | PROJECT PERIOD- Including past, current and future | AIM/KEY ACTIVITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | SOURCE DOCUMENT/ WEBSITE                                                                                                                                                                                                                                       | Priority ranking |      |     |     |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|--------------------------------------------------------|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------|-----|-----|
|          |                                                                                                                                                                   |                                                         |                                                        |                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                | Fisheries        | Aqua | CCA | DRM |
|          |                                                                                                                                                                   |                                                         |                                                        |                                                    | Close coordination and collaboration will be sought with the UNDP-GEF/LDCF projects “Adapting water resource management in the Comoros to expected climate change” (on-going) and “Enhancing adaptive capacity and resilience to climate change in the agriculture sector in Comoros” (under development). These are particularly important to the extent that they relate to land-uses (agriculture) and ecosystem services (water yields). Where sites coincide, synergies will be further developed. |                                                                                                                                                                                                                                                                |                  |      |     |     |
| Comoros  | SIP-Integrated Ecological Planning and Sustainable Land Management in Coastal Ecosystems in the Comoros in the Three Islands of Grand Comoros, Anjouan and Moheli | GEF Trust Fund                                          | Ministry of Agriculture, Fisheries and the Environment | Approved 2008 – under implementation               | The aim is to address non-sustainable land use practices and concurrent loss of biodiversity through the development and adoption of an ecosystem-based approach in the rural land use planning and development activities of Comoros.                                                                                                                                                                                                                                                                  | <a href="http://www.thegef.org/gef/project_detail?projID=3363">www.thegef.org/gef/project_detail?projID=3363</a>                                                                                                                                               |                  |      |     |     |
| Eritrea  | Climate Change Adaptation Programme In Water and Agriculture In Anseba Region, Eritrea                                                                            | Adaptation Fund                                         | UNDP, Ministry of Agriculture                          |                                                    | <p>The overall goal of the programme is to promote increased food security in Eritrea through ecologically sustainable and climate-resilient improvements in agricultural production.</p> <p>The objective of the programme is to increase community resilience and adaptive capacity to climate change through an integrated water management and agricultural development approach in the districts of Hamelmalo and Habero, Anseba Region, Eritrea.</p>                                              | <a href="http://www.adaptation-fund.org/project/1329-climate-change-adaptation-programme-water-and-agriculture-anseba-region-eritrea">www.adaptation-fund.org/project/1329-climate-change-adaptation-programme-water-and-agriculture-anseba-region-eritrea</a> |                  |      |     |     |
| Ethiopia | Coping with Drought and Climate Change                                                                                                                            | GEF SCCF                                                | UNDP, Ethiopian Ministry of Agriculture                |                                                    | To develop and pilot a range of coping mechanisms for reducing the vulnerability of farmers and pastoralists to future climate shocks. Fisheries are not highlighted as a priority, but food security is mentioned throughout.                                                                                                                                                                                                                                                                          | <a href="http://www.thegef.org/gef/project_detail?projID=3154">www.thegef.org/gef/project_detail?projID=3154</a>                                                                                                                                               |                  |      |     |     |
| Ethiopia | Impacts of anthropogenic activities and climate change on some rift valley and high lakes of Ethiopia                                                             | The institution is funded by the government of Ethiopia | The National Fishery Research Centre                   |                                                    | This project looks at the impacts of anthropogenic activities and climate change on the livelihoods of fishing communities in the rift valley and high lakes of Ethiopia. The primary focus is developing adaptation or mitigation measures (based on the results of research) for the communities directly affected by the impacts on the lakes.                                                                                                                                                       | Survey response                                                                                                                                                                                                                                                |                  |      |     |     |
| Ethiopia | SIP Community-Based Integrated Natural Resources                                                                                                                  | GEF Trust Fund                                          | Amhara National Regional State (ANRS);                 |                                                    | To increase household incomes through sustainable land management practices in the Lake Tana Watershed (LTW). Simultaneously, improvements to ecosystem function will be beneficial for biodiversity conservation and will protect against                                                                                                                                                                                                                                                              | <a href="http://www.thegef.org/gef/project_detail?projID=3367">www.thegef.org/gef/project_detail?projID=3367</a>                                                                                                                                               |                  |      |     |     |

| COUNTRY    | NAME OF PROJECT                                                                                                   | Funding ORGANIZATION (s) | Implementing ORGANIZATION(s)                                                                                                  | PROJECT PERIOD- Including past, current and future | AIM/KEY ACTIVITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | SOURCE DOCUMENT/ WEBSITE                                                                                                                                                                                                                                                   | Priority ranking |      |     |     |
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|            | Management in Lake Tana Watershed                                                                                 |                          | Environmental Protection, Land Administration & Use Authority (EPLAUA); Ministry of Agriculture and Rural Development (MOARD) |                                                    | negative climate change impacts. The project's immediate objective will lead to global environmental benefits as a result of reduced land degradation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                            |                  |      |     |     |
| Kenya      | Kenya Coastal Development Project                                                                                 | GEF Trust Fund           | GEF and the Kenya Marine and Fisheries Research Institute (KMFRI)                                                             | Endorsed in 2010                                   | To strengthen conservation and sustainable use of marine and coastal biodiversity and to support climate change mitigation initiatives.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <a href="http://www.thegef.org/gef/project_detail?projID=3313">www.thegef.org/gef/project_detail?projID=3313</a>                                                                                                                                                           |                  |      |     |     |
| Kenya      | Kenya Coastal Development Project                                                                                 | World Bank               | Kenya Marine and Fisheries research Institute (KMFRI)                                                                         | 2010 – 2016                                        | <p>The objective of the Coastal Development Project is to promote the environmentally sustainable management of Kenya's coastal and marine resources by strengthening the capacity of existing relevant government agencies and by enhancing the capacity of rural micro-, small- and medium-sized enterprises in selected coastal communities. There are four components to the project:</p> <ol style="list-style-type: none"> <li>1) Sustainable management of fisheries resources;</li> <li>2) Sound management of natural resources;</li> <li>3) Support for alternative livelihoods.; and</li> <li>4) Capacity building, monitoring and evaluation system, project management, communication and Coastal Village Fund (CVF).</li> </ol>                                                                                                                                                                                                                                                                                                                                                                  | <a href="http://www.worldbank.org/projects/P094692/kenya-coastal-development-project?lang=en">www.worldbank.org/projects/P094692/kenya-coastal-development-project?lang=en</a>                                                                                             |                  |      |     |     |
| Madagascar | Adapting coastal zone management to climate change in Madagascar considering ecosystem and livelihood improvement | GEF LDCF                 | UNDP; Directorate of Climate Change, Ministry of Environment and Forests                                                      |                                                    | <p>To reduce vulnerability of the coastal zone to climate change and climate variability in order to increase its contribution to national economic development and poverty reduction.</p> <p>This project addresses NAPA priorities 1: rehabilitation and/or construction of protective dams and dykes; 4: adoption of anti-erosion measures, soil rehabilitation and dune stabilization; 5: installation of light climate monitoring infrastructure and strengthening of decentralized climate services; 7: rehabilitation of degraded coastal areas, including through reforestation of <i>filao</i>s, mangrove plantation, stone dykes and shoreline management, and tide or wave breaks; and 11: development of information, engagement and communication systems.</p> <p>The project will develop institutional capacity to address climate change impacts on coastal zones and will pilot technologies for protection of coastal assets. The project will also rehabilitate climate monitoring infrastructure and mainstream adaptation measures into national policies and development strategies.</p> | <a href="http://www.thegef.org/gef/content/adapting-coastal-zone-management-climate-change-madagascar-considering-ecosystem-and-livelihood">www.thegef.org/gef/content/adapting-coastal-zone-management-climate-change-madagascar-considering-ecosystem-and-livelihood</a> |                  |      |     |     |

| COUNTRY    | NAME OF PROJECT                                                                            | Funding ORGANIZATION (s)                                                     | Implementing ORGANIZATION(s)                                   | PROJECT PERIOD- Including past, current and future | AIM/KEY ACTIVITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | SOURCE DOCUMENT/ WEBSITE                                                                                                                                                                                                                                                                                 | Priority ranking |      |     |     |
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| Madagascar | Mainstreaming climate and disaster risk management into economic development in Madagascar | AfDB CARE; CIRAD; CI; EU (GTZ); Gov't of Madagascar; Indian Ocean Commission | Government of Madagascar                                       | Feb 2009 – Dec 2010                                | Assistance to the Government of Madagascar and key stakeholders to best mainstream hazard risk management into key economic and social sectors, with special focus on prevention and adaptation:<br>1) Strengthening overall risk assessment at the regional and district levels, by carrying out hazard analysis of cyclones, droughts, and inundation and wind; and strengthening the analysis of losses, damages, vulnerability and risks and compiling a national risk atlas; and<br>2) Risk mitigation by reviewing existing national construction codes and updating them with cyclone-proof standards for major sectors and areas at risk.                                                                                                                                                                                                               | <a href="http://www.un.org/climatechange/projectsearch/proj_details.asp?projID=175&amp;ck=6xs3hVMCbJB1gz">www.un.org/climatechange/projectsearch/proj_details.asp?projID=175&amp;ck=6xs3hVMCbJB1gz</a><br><br><a href="http://www.africa-adapt.net/projects/279/">www.africa-adapt.net/projects/279/</a> |                  |      |     |     |
| Malawi     | Adaptation of fisheries and aquaculture to climate change in Malawi                        | FAO in the implementing stage; GEF later on                                  | FAO; Government of Malawi                                      | 1 Oct 2011 – 31 Dec 2012 on-going pipeline         | To develop a PIF for the LDCF to fund a national workshop to discuss main vulnerability issues and the content of a PIF for adaptation in fisheries and aquaculture in Lake Malawi.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | FAO on-going project                                                                                                                                                                                                                                                                                     |                  |      |     |     |
| Malawi     | Shire River Basin Management Program (Phase-I) Project                                     | World Bank                                                                   | Ministry of Water Development and Irrigation                   |                                                    | The overall program development objective of the Shire River Basin Management Program (SRBMP) is to increase sustainable social, economic and environmental benefits by effectively and collaboratively planning, developing and managing the Shire River Basin's natural resources. There is a strong focus on integrating current knowledge of climate change effects on the basin into planning and adaptive strategies. Fisheries are recognized through their importance to communities living within the basin. Aquaculture is especially noted as having significant potential for development.                                                                                                                                                                                                                                                          | <a href="http://www.worldbank.org/projects/P117617/malawi-shire-river-basin-management-project?lang=en">www.worldbank.org/projects/P117617/malawi-shire-river-basin-management-project?lang=en</a>                                                                                                       |                  |      |     |     |
| Mauritius  | Climate Change Adaptation Programme in the Coastal Zone of Mauritius                       | Adaptation Fund                                                              | UNDP; Ministry of the Environment and Sustainable Development  |                                                    | The programme objective is to increase the climate resilience of communities and livelihoods in coastal areas in Mauritius (all islands), through the application of adaptation measures to protect currently vulnerable coastal ecosystem and community features (at three priority sites on the island of Mauritius); development and implementation of an early warning system; training to promote compliance with climate-proofed planning, design and location guidelines; policy mainstreaming; and knowledge dissemination and management.                                                                                                                                                                                                                                                                                                              | <a href="http://www.adaptation-fund.org/project/climate-change-adaptation-programme-coastal-zone-mauritius">www.adaptation-fund.org/project/climate-change-adaptation-programme-coastal-zone-mauritius</a>                                                                                               |                  |      |     |     |
| Mozambique | Adaptation in the coastal zones of Mozambique                                              | GEF LDCF                                                                     | UNDP; Ministry for the Coordination of the Environment (MICOA) |                                                    | Protective ecosystems, such as mangrove swamps, dune systems and coral reefs, are critical to improving resilience against sea level rise and destructive maritime hazards (storm surges, tsunamis and tropical cyclones). So too is addressing the widespread poverty in coastal areas, which inadvertently contributes to the degradation of ecosystems. As such, livelihood diversification is a key component of this project.<br><br>The project aims to break down barriers to weak inter-sectoral policy coordination and development, eliminate financial constraints and build institutional and individual capacity to plan for the effects of climate change. The project will support the development of human, social, natural, physical and financial capitals in order to establish climate-resilient livelihoods in Mozambique's coastal zones. | <a href="http://www.adaptationlearning.net/project/ldcf_mozambique">www.adaptationlearning.net/project/ldcf_mozambique</a>                                                                                                                                                                               |                  |      |     |     |

| COUNTRY    | NAME OF PROJECT                                                                                                                                                               | Funding ORGANIZATION (s) | Implementing ORGANIZATION(s)                          | PROJECT PERIOD- Including past, current and future | AIM/KEY ACTIVITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | SOURCE DOCUMENT/ WEBSITE                                                                                         | Priority ranking |      |     |     |
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|            |                                                                                                                                                                               |                          |                                                       |                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                  | Fisheries        | Aqua | CCA | DRM |
| Namibia    | Climate Change Enabling Activity (additional financing for capacity building in priority areas)                                                                               | GEF Trust Fund           | Govt. of Namibia, Ministry of Environment and tourism | This additional funding was approved in 2003.      | The goal of this project is to facilitate the generation, storage, retrieval and dissemination of data and information needed to prepare Namibia to adapt technology and thereby reduce its contribution to global greenhouse gas emissions. The objectives of the project are as follows:<br>1) Enhance the capacity of the Republic of Namibia to participate in technology transfer initiatives<br>2) Assess information on technology transfer and adaptation within the energy sector;<br>3) Facilitation of coordination between national and cooperation with international institutions in the energy sector; and<br>4) Assist Namibia to reduce the level of uncertainty in GHG emission factors. | <a href="http://www.thegef.org/gef/project_detail?projID=2087">www.thegef.org/gef/project_detail?projID=2087</a> |                  |      |     |     |
| Namibia    | Namibian Coast Conservation and Management Project                                                                                                                            | GEF Trust Fund           | UNDP; Ministry of Environment and Tourism             |                                                    | The objective of the project is to contribute to the conservation and management of coastal and marine ecosystems on the Namibian coast through an integrated coastal zone management (ICZM) approach.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <a href="http://www.thegef.org/gef/project_detail?projID=4669">www.thegef.org/gef/project_detail?projID=4669</a> |                  |      |     |     |
| Rwanda     | Reducing Vulnerability to Climate Change by Establishing Early Warning and Disaster Preparedness Systems and Support for Integrated Watershed Management in Flood Prone Areas | GEF LDCF                 | UNEP/UNDP; Ministry of Natural Resources              | On-going (started 2010)                            | The overall objective of this project is to reduce the vulnerability of the Gishwati ecosystem and its associated Nile-Congo crest watersheds and the people who derive their livelihoods from it, to increased floods and droughts caused by climate change.                                                                                                                                                                                                                                                                                                                                                                                                                                              | <a href="http://www.thegef.org/gef/project_detail?projID=3838">www.thegef.org/gef/project_detail?projID=3838</a> |                  |      |     |     |
| Seychelles | Capacity Development for Improved National and International Environmental Management in Seychelles                                                                           | GEF Trust Fund           | UNDP                                                  |                                                    | The objective of the project is to increase capacity for effective environmental management to address national and global environmental issues by achieving certain desired results identified in the National Capacity Self-Assessment (NCSA). These include:<br>1) International environmental conventions are effectively managed;<br>2) Donor-funded projects are designed to help Seychelles meet international and national environmental commitments and priorities;<br>3) International and national environmental commitments are financed through a range of sources and mechanisms; and<br>4) An institutional framework to effectively implement Seychelles' environmental plan is in place.  | <a href="http://www.thegef.org/gef/project_detail?projID=3074">www.thegef.org/gef/project_detail?projID=3074</a> |                  |      |     |     |

| COUNTRY    | NAME OF PROJECT                                                                                                                     | Funding ORGANIZATION (s) | Implementing ORGANIZATION(s)                                                                                | PROJECT PERIOD- Including past, current and future | AIM/KEY ACTIVITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | SOURCE DOCUMENT/ WEBSITE                                                                                                     | Priority ranking |      |     |     |
|------------|-------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|------------------|------|-----|-----|
|            |                                                                                                                                     |                          |                                                                                                             |                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                              | Fisheries        | Aqua | CCA | DRM |
| Seychelles | Ecosystem Based Adaptation to Climate Change in Seychelles                                                                          | Adaptation Fund          | UNDP                                                                                                        |                                                    | <p>The overall goal of the project is to ensure the sustainable development of the Seychelles, and that it is resilient to anticipated climate change effects. The objective is to incorporate ecosystem-based adaptation into the country's climate change risk management system with the aim of safeguarding water supplies threatened by climate change induced perturbations in rainfall and buffering erosion and coastal flooding risks which are expected to arise as a result of higher sea levels and increased storm surges. The components are :</p> <ol style="list-style-type: none"> <li>1) ecosystem-based adaptation approach to enhancing freshwater security in Mahe under conditions of climate change;</li> <li>2) ecosystem-based adaptation approaches along the shorelines of the Grantic islands reduce the risks of climate change induced coastal floods;</li> <li>3) ecosystem-based adaptation mainstreamed into development planning and financing.</li> </ol> | www.adaptation-fund.org/project/1643-ecosystem-based-adaptation-climate-change-seychelles                                    |                  |      |     |     |
| Tanzania   | Developing Core Capacity to Address Adaptation to Climate Change in Tanzania in Productive Coastal Zones                            | GEF LDCF                 | Tanzania Meteorological Agency; Prime Minister's Office – Disaster Management Department; Ministry of Water | CEO endorsed in 2011                               | <p>The project intends to raise the awareness of local communities living along the coast (Rufiji and some parts of Bagamoyo districts) about the importance of mangroves in relation to climate change and adaptation. Nurseries for mangrove trees and other tree species (which mature rapidly) will be established in at least 10 villages in Rufiji district. Communities will be assisted to transplant and care for trees in the most affected areas. The campaign will also encourage communities to grow other plant species to replace mangroves used for timber and poles for construction.</p> <p>This project seeks to implement pilot projects aimed at reducing vulnerability and to improve capacity for implementing such measures. This is being done by promoting training and knowledge development at government level and developing professional expertise by providing support to university degree programmes.</p>                                                  | www.thegef.org/gef/project_detail?projID=4991                                                                                |                  |      |     |     |
| Tanzania   | Implementation of Concrete Adaptation Measures To Reduce Vulnerability Of Livelihood and Economy Of Coastal Communities In Tanzania | Adaptation Fund          | UNEP                                                                                                        |                                                    | <p>The project intends to lessen the negative impacts of sea level rise and changes in precipitation patterns in the Ilala and Temeke Districts of Dar es Salaam. Specifically, it aims to</p> <ol style="list-style-type: none"> <li>1) Reduce the adverse impacts of sea level rise and floods on coastal infrastructure and settlements;</li> <li>2) Rehabilitate coastal ecosystems to enhance ecological resistance to flooding;</li> <li>3) Conduct a baseline study based on coastal vulnerability and an assessment of the economic viability and practical feasibility of adaptation measures;</li> <li>4) Create and operate a climate change observatory for Tanzania;</li> <li>5) Document lessons learned and build district level administrative capacity; and</li> <li>6) Produce an ecosystem-based Integrated Coastal Area Management Plan.</li> </ol>                                                                                                                      | www.adaptation-fund.org/project/implementation-concrete-adaptation-measures-reduce-vulnerability-livelihood-and-economy-coas |                  |      |     |     |

| COUNTRY  | NAME OF PROJECT                                                                                                                                | Funding ORGANIZATION (s) | Implementing ORGANIZATION(s)                                      | PROJECT PERIOD- Including past, current and future | AIM/KEY ACTIVITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | SOURCE DOCUMENT/ WEBSITE                                                                                                                                                                                                                                                                                   | Priority ranking |      |     |     |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------------------------------------|----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------|-----|-----|
|          |                                                                                                                                                |                          |                                                                   |                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                            | Fisheries        | Aqua | CCA | DRM |
| Tanzania | Marine and Coastal Environment Management                                                                                                      | World Bank               | Government of Tanzania                                            | 2005 – 2013                                        | The Tanzania Marine and Coastal Environment Management Project aims to strengthen the sustainable management and use of Tanzania's EEZ, territorial seas, and coastal resources, resulting in enhanced revenue collection, reduced threats to the environment, better livelihoods for participating coastal communities living in the coastal districts, and improved institutional arrangements.                                                                                                                                                                                                                                                                                                                                                                                                                             | <a href="http://www.worldbank.org/projects/P082492/marine-coastal-environment-management?lang=en">www.worldbank.org/projects/P082492/marine-coastal-environment-management?lang=en</a>                                                                                                                     |                  |      |     |     |
| Tanzania | Knowledge base for best practice and lessons learned in the management of coral reefs                                                          | GEF Trust Fund           | UNDP; UNEP and the World Bank                                     | Completed in 2010                                  | The purpose of the project was to develop an effective adaptation strategy that could be used in different sites within common ecosystems. The project focused its initiatives on a single ecosystem type, namely mangrove ecosystems with near-shore coral reefs. It also initiated pilot projects to test the adaptation strategy in the ecosystem so as to address and ameliorate climate change impacts. The overall goal of the project was to increase the resilience of vulnerable mangrove and coral reef ecosystems to the impacts of climate change.                                                                                                                                                                                                                                                                | <a href="http://www.thegef.org/gef/project_detail?projID=2092">www.thegef.org/gef/project_detail?projID=2092</a><br><br><a href="http://www.icran.org/pdf/GEF_Flyer.pdf">www.icran.org/pdf/GEF_Flyer.pdf</a><br><br>N.B. this project is implanted globally, but within Africa, only operates in Tanzania. |                  |      |     |     |
| Zimbabwe | Coping with Drought and Climate Change in Zimbabwe                                                                                             | GEF SCCF                 | UNDP; Government of Zimbabwe, Ministry of Environment and Tourism | December 2011 – on-going                           | In Zimbabwe's rural District of Chiredzi, the Special Climate Change Fund (SCCF) of the Global Environment facility (GEF) has supported a project to enhance the capacity of farmers to adapt to climate variability and change through the adoption of gender-sensitive approaches.<br><br>The project focuses on improving the climate change knowledge of local populations to facilitate adaptation choices; piloting demonstration of policy-oriented adaptation practices; and promoting the use of climate early warning systems.                                                                                                                                                                                                                                                                                      | <a href="http://www.africa-adapt.net/projects/249/">www.africa-adapt.net/projects/249/</a><br><br><a href="http://www.thegef.org/gef/project_detail?projID=3156">www.thegef.org/gef/project_detail?projID=3156</a>                                                                                         |                  |      |     |     |
| Zimbabwe | IAASL – Integrated Agriculture Aquaculture for Sustainable Livelihoods (IAASL); and Biodiversity and Integrated Agriculture Aquaculture (BIAA) | Aquaculture Zimbabwe     | Aquaculture Zimbabwe                                              |                                                    | Having secured funding for the multi-donor Protracted Relief Programme (PRP) third round in 2011, Aquaculture Zimbabwe (AZ) set out to implement a community-based livelihoods project in two districts of Masvingo province in Zimbabwe, namely Chivi and Masvingo. The project focused on community-based freshwater fish farming activities with the aim of achieving the broader PRP goal of preventing destitution by protecting and promoting livelihoods of the poor and vulnerable communities within Zimbabwe. The overall purpose and scope of this project is to increase food security; improve nutrition and dietary diversity options; increase disposable incomes of the chronically poor, labour endowed households through the implementation of the IAASL system of production for sustainable livelihoods. | Survey response<br><br><a href="http://www.aquaculturezim.org/">www.aquaculturezim.org/</a><br><br><a href="http://www.kubatana.net/docs/wild/aqua_fish_tidings_4_110923.pdf">www.kubatana.net/docs/wild/aqua_fish_tidings_4_110923.pdf</a>                                                                |                  |      |     |     |

## 7.9 NAPA priority actions

The sections below provide a list of the priority actions for fisheries and aquaculture as identified in the NAPAs for each of the LDCs of the Southern and Eastern subregion, which will require support for implementation.

| Country    | Relevant priority (current and planned) adaptation actions identified in the NAPAs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Angola  | Planned: <ul style="list-style-type: none"> <li>• Study the vulnerability of fishing activities in relation to modifications of climate and currents</li> <li>• Create an early warning system for flooding and storms</li> <li>• National institutional mechanism for adaptation planning and mainstreaming</li> <li>• Climate monitoring and data management system</li> <li>• Study implications of changes in disease patterns (animal) and availability of water for livestock</li> <li>• Increase water availability through village-level wells and boreholes</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 2. Comoros | Past: <ul style="list-style-type: none"> <li>• Equipping small boats with engines</li> <li>• Introduction of fish concentration mechanisms (FCM)</li> </ul> Planned: <ul style="list-style-type: none"> <li>• Introducing Fish Concentration Mechanisms (FCM) to set the fishing zones</li> <li>• Improving refrigeration to reduce post-harvest losses</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 3. Eritrea | Current: <ul style="list-style-type: none"> <li>• Migrate to highlands (to avoid flooding)</li> <li>• Planting trees around houses (to reduce erosion and damage from flooding)</li> <li>• Temporarily protect the coast with stones and other barriers, such as dykes</li> <li>• Shift to other livelihoods</li> <li>• Migrate to relatively suitable and cold areas</li> <li>• Stock dried fish before the change take place</li> <li>• Pelagic fish migrate to other less stressed place</li> <li>• Avoid fishing and disturbing spawning areas</li> <li>• Financial support for fisheries cooperatives</li> <li>• Community-based marine resource management programme</li> <li>• Small-scale aquaculture useful as a vehicle to stabilize food supplier and employment</li> <li>• ECBIM project</li> <li>• National Biodiversity Strategy and Action Plan</li> <li>• Manazanar project (mangrove planting)</li> <li>• Enforcing community bylaws, e.g. regulations where fine is imposed if a person uses banned fishing methods</li> </ul> |

| Country       | Relevant priority (current and planned) adaptation actions identified in the NAPAs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               | <ul style="list-style-type: none"> <li>• Closed season and closed areas, i.e. restocking depleted species</li> </ul> <p>Planned (potential) :</p> <ul style="list-style-type: none"> <li>• Strengthening integrated coastal area management (ICAM) practices</li> <li>• Establishing a comprehensive ecological, oceanographic and meteorological information system to support an adaptive strategy for coastal areas</li> <li>• Implement a management programme for mangroves; introduction of marine and coastal protected areas; relocation of island inhabitants</li> <li>• Community awareness programmes on climate change and adaptation options</li> <li>• Improving fisheries infrastructure (e.g. refrigeration facilities, water desalination service, electrical supply, flake ice machine, etc.)</li> <li>• Strengthen the storage and processing capacity of fisheries cooperatives</li> <li>• Strengthen artisanal fishers' cooperatives through technical assistance for marketing, distribution, etc.</li> <li>• Strengthen resource management and planning, including conducting fisheries assessments and expand the current resource and fisheries monitoring program</li> <li>• Establish an area-based co-management system between the Ministry of Fisheries and the cooperatives</li> <li>• Assist cooperatives to establish fully protected marine reserves</li> <li>• Increase license fees for foreign fishers in conjunction with increased surveillance and enforcement</li> </ul> |
| 4. Ethiopia   | <p>Planned:</p> <ul style="list-style-type: none"> <li>• Introduction of fish ponds</li> <li>• Establishing, legalization and regulation of fish resource exploitation</li> <li>• Community-based sustainable utilization and management of wetlands</li> <li>• Aquaculture development for efficient harvest of commercial <i>Spirulina</i> species in the Lakes of the Ethiopian Rift Valley system</li> <li>• Strengthening/enhancing drought and flood early warning systems in Ethiopia</li> <li>• Realizing food security through multi-purpose large-scale water development project in Genale – Dawa Basin</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 5. Madagascar | <p>Planned:</p> <ul style="list-style-type: none"> <li>• Establish more protected areas and ensure their financial sustainability</li> <li>• Develop and implement sustainable use plans for protected areas</li> <li>• Establish a plan for sustainable co-management and related capacity-strengthening</li> <li>• Develop shrimp (and other types of) aquaculture</li> <li>• Create alternative livelihoods to reduce pressure on the shrimp stock</li> <li>• Establish fish concentration devices; ensure use of eco-friendly harvesting techniques in the shrimp fishery</li> <li>• Replant mangroves</li> <li>• Use coral transplantation technologies</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 6. Malawi     | <p>Planned:</p> <ul style="list-style-type: none"> <li>• Fish breeding to restock the lakes, rivers and dams</li> <li>• Improve knowledge and understanding on how temperature profiles in the lake disrupt fish breeding and survival</li> <li>• Establish climate observations or monitoring systems on Lake Malawi (including early warning)</li> <li>• Mainstream climate change into fisheries strategies</li> <li>• Improve community resilience to climate change through the development of sustainable rural livelihoods</li> <li>• Formulation and implementation of regulations focusing on protecting the most vulnerable stocks as well as enforcing protected areas, through community participation</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |



| Country       | Relevant priority (current and planned) adaptation actions identified in the NAPAs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7. Mauritius  | <p>Current:</p> <ul style="list-style-type: none"> <li>• The voluntary net buy-back scheme, implemented since 1996, helps to prevent further degradation</li> </ul> <p>Planned:</p> <ul style="list-style-type: none"> <li>• The National Biodiversity Strategy and Action Plan (2006 – 2016) recommends the development of an ICZM plan</li> <li>• Increasing the area of coastal wetlands and mangroves, within the Protected Area Project</li> <li>• Implementation of an aquaculture master plan</li> <li>• Creation of marine protected areas and marine parks</li> <li>• Introduction of closed seasons for certain fisheries and for commercial fishing</li> <li>• Sensitization of fishers with regard to climate change impacts</li> <li>• Coral farming</li> <li>• Strengthening the management of coral reef ecosystem</li> <li>• Strengthening on-going mangrove propagation programmes</li> </ul>                                                                                                                                                                                                              |
| 8. Mozambique | <p>Planned:</p> <ul style="list-style-type: none"> <li>• Strengthening of an early warning system, including assistance from Ministry of Fisheries</li> <li>• Discouraging the use of harmful fishing practices</li> <li>• Establishing a monitoring system for dunes, beaches and mangroves</li> <li>• Establishing coastal zone management centres</li> <li>• Identifying and creating new income activities for local communities that will help reduce poverty and contribute to a better way of using coastal and water resources</li> <li>• Improving post-harvest practices and value-chains</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 9. Sudan      | <p>Current:</p> <ul style="list-style-type: none"> <li>• Introduction of drought-resistant seed varieties, poultry and fish production as well as improving fishery and fish utilization</li> </ul> <p>Planned:</p> <ul style="list-style-type: none"> <li>• Introduction of fish species for high protein nutrition and income generation, with the near-term outcome of introducing new natural resources such as fish and fruit trees</li> <li>• Improving fishery and fish utilization in East Jebbel Marra, Safia lake, Kundi, and Kidinir areas</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 10. Tanzania  | <p>Current:</p> <ul style="list-style-type: none"> <li>• Marine and coastal environment management programmes and projects e.g: Tanga Coastal Conservation and Development Programme (TCCDP); the National Integrated Coastal Environment Management Strategy; Rural Integrated Project Support Programme (RIPS); Mangrove Management Programme (MMP); Rufiji Environment Management Project (REMP); Conservation of Lowland Coastal Forests Project; Zanzibar Coastal Zone Management Programme; Sustainable Dar es Salaam Project; Kinondoni Coastal Area Management Programme</li> <li>• Conservation of marine and coastal resources measures – Mafia Island Marine Park; Mnazi Bay Marine Park; Menai Bay Conservation Area; Misali Island Conservation Area; Chumbe Island Coral Park</li> </ul> <p>Planned (potential):</p> <ul style="list-style-type: none"> <li>• Restoration of degraded habitat (e.g. vertiva grass planting, mangrove replanting, stimulation of coral reefs growth)</li> <li>• Construction of artificial structures (e.g. sea walls and artificially placing sand on the beaches)</li> </ul> |

| Country    | Relevant priority (current and planned) adaptation actions identified in the NAPAs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            | <ul style="list-style-type: none"> <li>• Reduction or elimination of non-climate stress (e.g. elimination of destructive fishing practices, illegal and overfishing)</li> <li>• Reduction of pollution</li> <li>• Proper management of salt production and seaweed farming</li> <li>• Coastal ecosystem monitoring</li> <li>• Improving existing and expanding irrigation infrastructure, and developing rain water harvesting infrastructure, including water for livestock and fishery</li> <li>• Strengthening physical infrastructure to support growth of employment generating and profitable agriculture, including small scale crop faming, livestock, fishery, etc.</li> <li>• Promoting measures to cushion farmers, livestock farmers, fishers from famine/drought impacts, including piloting and scaling up farm crops/livestock insurance</li> <li>• Promoting investment in the exploration of deep sea and Exclusive Economic Zone fisheries resources</li> <li>• Promoting effective development of the aquaculture industry</li> <li>• Raising awareness of climate change</li> </ul> |
| 11. Uganda | Planned (potential): <ul style="list-style-type: none"> <li>• Reducing siltation of river banks and lake shores through increased vegetation</li> <li>• Control diseases and vectors in fisheries</li> <li>• Improve capacity for quality assurance, regulation, food and safety standards for outputs and products</li> <li>• Enforce fisheries laws, regulations, standards and guidelines along the entire value chain</li> <li>• Support the increase in acreage of both small-scale and large-scale aquaculture</li> <li>• Improve water quality management, including lake transport and control of water hyacinth and other invasive weeds</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 12. Zambia | Planned: <ul style="list-style-type: none"> <li>• Fish restocking of lakes, rivers and dams; promotion of aquaculture, using suitable species; development of small dams, and other storage facilities, to mitigate droughts/flooding, to harvest water and to initiate community-based fish farming and breeding; strict licensing to regulate influx of fishers</li> <li>• Introduction and strengthening of co-management (e.g. through improved legal framework)</li> <li>• Improvement of water harvesting techniques</li> <li>• Strengthening of gender balanced research and extension/farmer linkages</li> <li>• Promotion of improved fish processing and storage</li> <li>• Income diversification</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                 |

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