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Report of the

BCC–FAO REGIONAL PROJECT DEVELOPMENT INCEPTION WORKSHOP ON BUILDING RESILIENCE IN BENGUELA FISHERIES AND AQUACULTURE

Cape Town, South Africa, 3–5 July 2013

Cover photograph: Red tides in Benguela upwelling. Courtesy of G.C. Pitcher, S. Bernard and J. Ntuli (Oceanography 2008).

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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
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PREPARATION OF THIS DOCUMENT

This is the report of the Regional Project Development Inception Workshop on Building Resilience in Benguela Fisheries and Aquaculture, held in Cape Town, South Africa, from 3 to 5 July 2013. The Benguela Current Commission and the FAO Fisheries and Aquaculture Department convened the workshop in support of the project development phase for the project "Enhancing Climate Change Resilience in the Benguela Current Fisheries System" under the Least Developed Countries Fund and the Special Climate change Fund administered by the Global Environment Facility (GEF).

The report was prepared by Cassandra De Young, Fisheries Planning Analyst, Policy and Economics Division, FAO Fisheries and Aquaculture Department, Rome, Italy, and Kevern Cochrane, Rhodes University, South Africa. Support for this workshop was provided by the Government of Japan under the project "Fisheries management and marine conservation within a changing ecosystem context (GCP/INT/253/JPN)", by the Government of Norway under the project "Climate Change, Fisheries and Aquaculture: testing a suite of methods for understanding vulnerability, improving adaptability and enabling mitigation (GCP/GLO/322/NOR)", and by the GEF.

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ABSTRACT

The objectives of the workshop were to bring together relevant stakeholders of the Benguela Large Marine Ecosystem to: (i) introduce the overall project and, more specifically, the project development phase; (ii) identify issues of transboundary concern that could be addressed in the project (from impacts to vulnerabilities, from past to future adaptation actions); (iii) clarify project preparation steps, identify partners, champions and resources during the preparation and, eventually, project implementation phases; and (iv) initiate discussion on the proposed national workshops to support the project development.

CONTENTS

ABBREVIATIONS AND ACRONYMS

AMAT	Adaptation Monitoring and Assessment Tool
BCC	Benguela Current Commission
BCLME	Benguela Current Large Marine Ecosystem
DAFF	Department of Agriculture, Forestry and Fisheries (South Africa)
DEA	Department of Environmental Affairs (South Africa)
DRM	disaster risk management
EAF/EAA	ecosystem approach to fisheries/ecosystem approach to aquaculture
EMG	Environmental Monitoring Group (South Africa)
GEF	Global Environment Facility
ICCAT	International Commission for the Conservation of Atlantic Tunas
IECN	Integrated Environmental Consultants Namibia
IPCC	Intergovernmental Panel on Climate Change
LDCF	Least Developed Countries Fund
MFMR	Ministry of Fisheries and Marine Resources (Namibia)
MPA	marine protected area
M&E	monitoring and evaluation
NAPA	National Adaptation Programme of Action
NGO	non-governmental organization
PaCFA	Global Partnership on Climate, Fisheries and Aquaculture
PPG	project preparation grant
SAP	Strategic Action Program
SCCF	Special Climate Change Fund
SEAFO	South East Atlantic Fisheries Organisation
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change

1. OPENING OF THE WORKSHOP

Mr Johann Augustyn, Chairperson of the Benguela Current Commission (BCC) Ecosystem Advisory Committee, opened the regional workshop. Mr Hashali Hamukuaya, Executive Secretary of the BCC, welcomed the participants. He also provided a brief history of the proposed Global Environment Facility (GEF) Least Developed Countries Fund (LDCF) and Special Climate Change Fund (SCCF) regional project "Enhancing Climate Change Resilience in the Benguela Current Fisheries System", to be executed by the BCC, supported by FAO and the United Nations Development Programme (UNDP), and in collaboration with national and global partners.

Following GEF requirements and based on the approved concept note, a full project document is to be developed and approved by the GEF Council by April 2014. To support the project document development, a proposed project preparation phase will include multistakeholder consultations, including this regional project development inception workshop, national stakeholder workshops and a regional project proposal validation workshop. The project preparation phase also proposes to undertake a scoping study of relevant stakeholders at the community, fisheries, national and regional levels to ensure involvement of key stakeholders in the project design process and clear definition of their role and responsibilities in the project and to identify related activities and development partners. This phase also proposes to: (i) establish vulnerability assessment frameworks appropriate for the Benguela Current fisheries social-ecological systems; (ii) undertake policy and institutional analyses with the aim of integrating fisheries climate change considerations into fisheries policies, planning and programmes; and (iii) identify existing best adaptation practices for the fisheries social-ecological systems of the Benguela Current region. During this phase, project execution options and agreement on the most efficient and cost-effective arrangement as well as the definition and specific roles and responsibilities of project partners will be discussed and determined.

A regional workshop assessing climate change vulnerability methodologies in fisheries and aquaculture in the Benguela system was held from 10 to 12 April 2013 in Windhoek, Namibia. The report from this workshop is available at: www.fao.org/docrep/018/i3389e/i3389e.pdf

1.1 Introduction of participants

The participants introduced themselves (see Appendix 2). Mr Augustyn was appointed chair of the workshop, and Ms Cassandra De Young, FAO, and Mr Kevern Cochrane, Rhodes University, rapporteurs.

1.2 Overview of workshop objectives and expected outputs

Ms De Young noted that the fisheries and aquaculture sector is a latecomer to the formal discussions on climate change vulnerability and concrete adaptation actions when compared with other sectors, such as agriculture and health. This proposed project is the first fisheries-specific project under the LDCF/SCCF funds and will provide useful experiences and lessons learned for other regions and fisheries in addition to the direct benefits projected for the Benguela fisheries and aquaculture.

The objectives of the project development inception workshop were:

1. to review the overall project framework approved for funding by the GEF LDCF/SCCF and, more specifically, the project development phase;
2. to identify issues of transboundary concern that could be addressed in the project (from impacts to vulnerabilities, from past to future adaptation actions);
3. to clarify project preparation steps, identify partners, champions and resources during the preparation and, eventually, project implementation phases;
4. to define national workshop objectives, agendas and organizational issues in support of the project development phase.

The proposed agenda to reach these objectives was reviewed and agreed upon (Appendix 3).

2. INTRODUCTION TO THE LDCF/SCCF BENGUELA PROJECT

2.1 History of project proposal, project framework and preparation phase

Mr Hamukuya presented a brief overview of the proposed project's history, noting that the fisheries issues relating to climate variability and change had been examined during the Benguela Current Large Marine Ecosystem (BCLME) Project (2002–09), such as through a regional expert workshop on biophysical features and trends in the BCLME in 2007.[1] These discussions were updated and broadened to include the human dimensions of such variability and change during a 2011 regional workshop[2] whose objectives were: to bring fisheries and climate change partners together to share and plan; to identify drivers and impacts of change, their effects on fisheries and the communities that depend on these resources; to identify short- to mid-term actions to improve the resilience of the marine system and the adaptive capacity of the fishing communities; and to agree on potential scope for a follow-up funding proposal. The participants of the 2011 workshop recommended that the BCC, national governments and relevant partners:

- support actions toward better understanding of the vulnerability of the BCLME human and marine systems to climate change and variability – of different systems, at different scales, comprehensive (e.g. throughout the value chain, through to communities and nations);
- identify and support actions to decrease the vulnerability of the BCLME human and marine systems and support broader moves toward sustainable development;
- organize national and regional processes (e.g. workshops, pilot and case studies) to support the fisheries and aquaculture sector in reaching consensus on vulnerabilities and appropriate adaptation actions within national and regional climate change and development priorities and strategies;
- identify and implement pilot projects to explore options and demonstrations for best practice and tools that can be used for implementing practical actions for adaptation to climate-induced change;
- pull together broad stakeholders from climate change, fisheries, land and aquatic management, water, agriculture and development to ensure participatory and integrated approaches are supported;
- identify means of supporting and funding the implementation of recommended actions at all levels (e.g. industry, fisher, community, non-governmental organization (NGO), government, intergovernmental organization / civil society organization;
- support the participation of the BCLME fisheries and aquaculture sectors within national, regional and global climate change discussions and actions (e.g. presenting issues specific to fisheries and aquaculture, understanding trade-offs and synergies of adaptation and mitigation actions within other sectors);
- utilize and build on the existing political commitment and integrated institutional arrangements of the BCC to facilitate and coordinate a regional programme on climate change adaptation in the BCLME region;
- designate the BCC to coordinate follow-up actions with FAO, UNDP and other relevant actors.

Based on these recommendations, the Angolan National Adaptation Programme of Action (NAPA),[3] the Angola, Namibian and South African United Nations Framework Convention on Climate Change (UNFCCC) National Communications, and national fisheries strategies, and with the approval of the national GEF and UNFCCC focal points, the BCC and FAO submitted a regional project concept note[4] to the GEF for funding under the LDCF and SCCF in autumn 2012. The proposed project concept note, which was approved in November 2012 by the GEF Council, is available in Appendix 1 and proposed the following objectives and project components:

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[1] BCLME. 2007. *The Changing State of the Benguela Current Large Marine Ecosystem: Expert Workshop on Climate Change and Variability and Impacts thereof in the BCLME Region, 15–16 May 2007* [online], compiled by J. Veitch. [Cited 4 February 2014]. www.dlist.org/sites/default/files/doclib/Climate%20Change%20Workshop%20report.pdf

[2] De Young, C., Hjort, A., Sheridan, S. & Davies, S. 2012. *Climate Change Implications for Fisheries of the Benguela Current Region – Making the Best of Change. FAO/Benguela Current Commission Workshop, 1–3 November 2011, Windhoek, Namibia*. FAO Fisheries and Aquaculture Proceedings No. 27. Rome, FAO. 125 pp. (also available at www.fao.org/docrep/017/i3053e/i3053e.pdf).

[3] See http://unfccc.int/national_reports/napa/items/2719.php

[4] Formally named Project Identification Form (PIF).

Title: Enhancing Climate Change Resilience in the Benguela Current Fisheries System

Objective:
To build resilience and reduce vulnerability of the Benguela Current marine fisheries systems to climate change through strengthened adaptive capacity and implementation of participatory and integrated adaptive strategies in order to ensure food and livelihood security.

Timeframe: 5 years

Project Components:
1. Integrating fisheries climate change considerations into fisheries policies and planning and into broader inter-sectoral policies and programmes.
2. Piloting of improved climate-resilient fisheries practices.
3. Capacity building and promotion of improved climate-resilient fisheries practices
4. Project Monitoring and Evaluation (M&E).

Component 1 will allow for vulnerability assessments of the social-ecological systems to guide the adaptation planning and may investigate issues at different scales (from local to regional), various fisheries and aquaculture subsectors, and biological, social and governance issues. Activities will support the inclusion of the sector into broader climate change and disaster risk management planning, raise awareness within the sector of potential implications of climate variability and change, and incorporate climate change into the Strategic Action Program (SAP) of the BCC.

Based on the results of the vulnerability assessments under Component 1, **Component 2** of the project will support concrete adaptation actions, targeting those within the Benguela fisheries and aquaculture identified as being at high risk, and will consider actions across all stages from production through to post-harvest and trade. Actions may address, as necessary, resource management, social and economic responses, governance issues, alternative and diversified livelihoods, and local monitoring and surveillance systems. This project will enable and facilitate that additional step through piloting of explicit actions for climate resilience, thereby demonstrating the advantages of doing so across the three countries. Based on the vulnerability assessments and initial adaptation options identification under Component 1, this component will further support adaptive capacities at three levels: actions to be taken at the community level, at the fishery level and at national and regional institutional level. Community-based adaptation action plans will be developed and implemented to the extent possible in at least six high-risk communities or fisheries. At least three fisheries management plans will be developed or strengthened to incorporate climate change variability and change, and national and regional monitoring and information systems will be evaluated for climate-related gaps. Actions to address gaps identified will include training in relevant skills, development of terms of reference for additional human capacity requirements, creation of focal points for cross-institution collaboration, and identification of any equipment or infrastructure needed as part of national and regional investment programmes. Collectively, these activities will contribute to integrated institution building at the local, national and regional levels.

Component 3 will complement the first two by reinforcing and widely disseminating the awareness and knowledge of vulnerability and approaches to adaptation to climate change, and ensuring a body of stakeholders, across all interest groups and functional roles, able to maintain and build on the knowledge gained and the practical progress made through the pilot studies. This Component will support the production of information products aimed at capacity building and provide targeted training sessions that will use modern, best-practice methods and approaches. These activities will lead to broader and deeper capacity on climate change vulnerability and adaptation in the region and contribute to ensuring that resilience is strengthened in fisheries and fisheries-dependent communities wherever climate change is, or could be, a significant threat to ecosystems and to the people dependent on them. This Component will also help to reinforce the existing national and regional efforts to improve fisheries management and rebuild overexploited stocks by ensuring that climate change and variability, currently generally overlooked in fisheries in the region, is included

as an important factor driving change and that adaptive action is taken as required.

Component 4 will provide the project with the specific monitoring and evaluation (M&E) system that will be needed in order to ensure effective implementation. This will result in rigorous monitoring of project indicators, including Adaptation Monitoring and Assessment Tool (AMAT) indicators in order to ensure that the project achieves its objective, and will include mid-term and final evaluations that will identify the main findings and lessons learned for application in the future. The project will also ensure that the results and best practices identified during implementation will be widely available and readily accessible. In addition to publication and dissemination of the main findings, a project website will be developed and maintained to contribute to maximizing overall impact and incremental benefits.

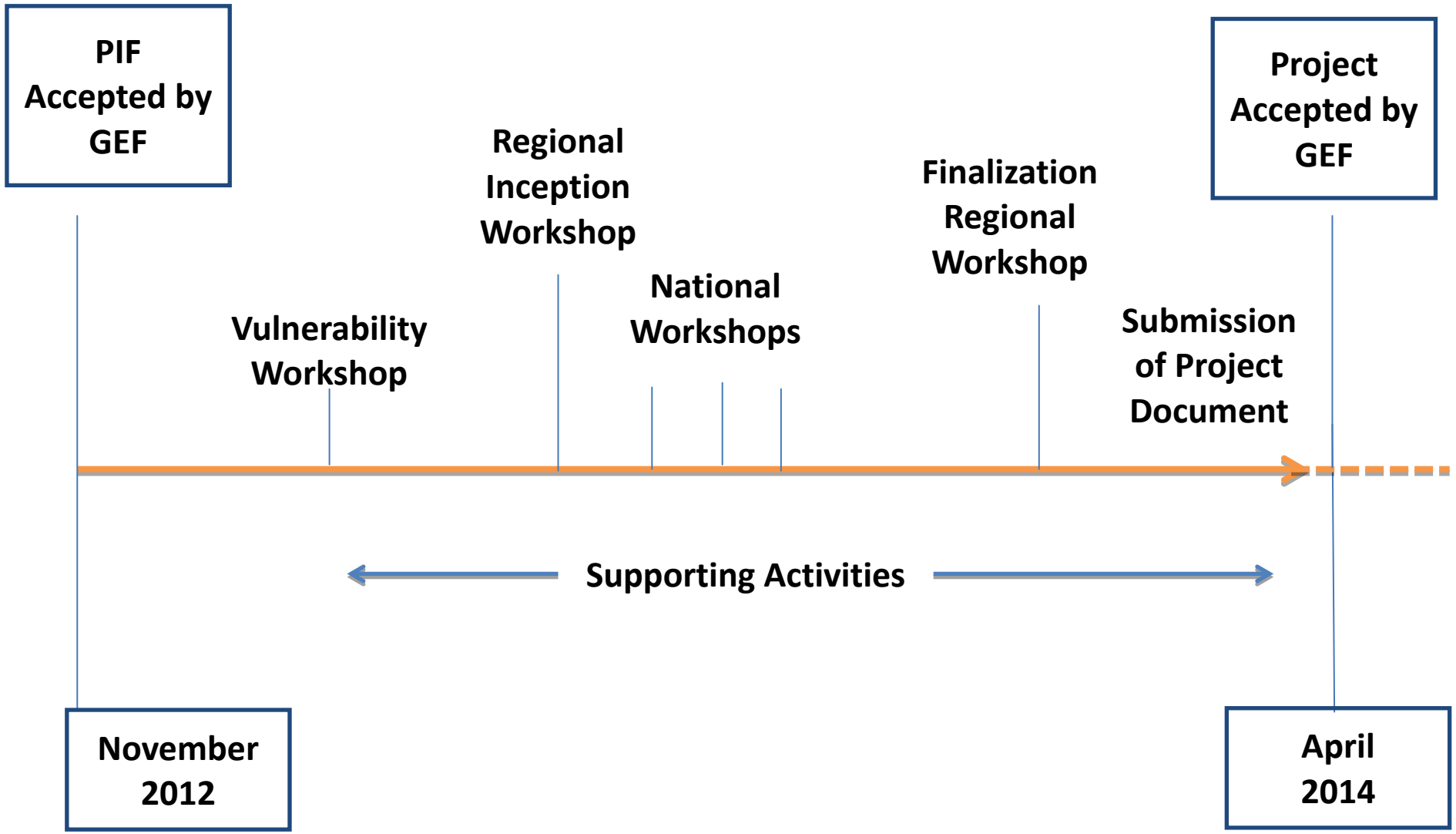
More detailed project outcomes and outputs were presented at the workshop and these are available in Appendix 4.

As mentioned above, the project preparation phase activities will focus on six main activities to support the development of a project document supported by stakeholders in the Benguela Current Region to be submitted for approval by the GEF Council:

1. Multistakeholder consultations through regional inception and validation workshops and three national stakeholder consultation workshops.
2. Establishment of vulnerability assessment methodologies for fisheries social-ecological systems to be applied during project implementation
3. Policy and institutional analysis for integrating fisheries climate change considerations into Benguela fisheries policies, planning and programmes.
4. Identification of best adaptation practices for Benguela fisheries social-ecological systems.
5. Analysis of project execution options, BCC fiduciary standards assessment.
6. Design of project components and analyses of project cost-effectiveness and sustainability.

Figure 1 provides an overview of the project preparation phase and relevant deadlines. A more detailed listing of preparation phase activities is available in Appendix 5.

Figure 1
Project preparation road map



2.2 Results of Regional Workshop on Assessing Climate Change Vulnerability in Benguela Fisheries and Aquaculture

Mr Cochrane provided an overview of the results of the regional workshop on assessing vulnerability to climate change in the fisheries and aquaculture systems of the Benguela Current Convention area, held in Windhoek, Namibia, from 11 to 13 April 2013. This workshop had been arranged as an introductory event for the project and took place back-to-back with the workshop on vulnerability assessment methodologies and their relevance to fisheries and aquaculture, held under the auspices of the Global Partnership on Climate, Fisheries and Aquaculture (PaCFA, see Section 4 of this report). The Benguela workshop thereby benefited from the presence of a number of global experts who had attended the PaCFA event.

The objective of the Benguela workshop was to introduce the latest thinking in climate variability and change vulnerability methodologies and to begin a reflection on what vulnerability assessment frameworks and methodologies would be appropriate for the Benguela region to set the stage for in-depth assessments during the project implementation phase. It was attended by representatives of key government departments and other stakeholder groups in Angola, Namibia and South Africa, the BCC, FAO, UNDP and others.[1]

In order to provide an overview of the current state of knowledge and practice in vulnerability assessments for fisheries and aquaculture, presentations were made by five leading practitioners from around the world. The presentations covered:

- Assessing vulnerability to climate change at multiple scales: to what purpose and how? Delivered by Eddie Allison, WorldFish Center, Malaysia and the University of East Anglia, United Kingdom;
- Fisherfolk perspectives of vulnerability: climate and policy intertwine in small-scale fisheries in Southern Brazil. Delivered by Denis Hellebrandt of the University of East Anglia, United Kingdom;
- Qualitative vulnerability assessment: case of coastal fishing households, Tanzania. Delivered by Robert Katikiro, Leibniz Centre for Tropical Marine Ecology, Bremen, Germany;
- Vulnerability to climate change in Chilean aquaculture and fisheries: results and findings. Delivered by Exequiel González Poblete, School of Marine Sciences, Pontificia Universidad Catolica de Valparaiso, Chile;
- Social-ecological vulnerability of coral reef fisheries to climate change. Delivered by Eddie Allison on behalf of Josh Cinner *et al*., James Cook University in Australia.

In addition, there were presentations on the background to the project by Mr Hashali Hamukuaya (BCC), Ms Cassandra De Young (FAO) and Mr Ian Hampton (on behalf of FAO and BCC). Thereafter, through a combination of small group work and plenary discussion, the workshop considered the following topics:

- initial scoping to consider the fisheries and communities to cover during the BCLME vulnerability assessment;
- defining the vulnerability questions to be addressed during the BCLME vulnerability assessment;
- plenary recommendations on fisheries/communities to assess;
- considering suitable vulnerability assessment methodologies and frameworks appropriate to the BCLME.

The full results of the workshop can be found in the report (FAO, forthcoming) but, for the purposes of this workshop, Mr. Cochrane highlighted the regional and transboundary issues related to climate change that the workshop considered particularly relevant to the project. These were divided into environmental and ecological issues and human and institutional issues. The workshop noted the following within the category of environmental and ecological issues:

- hake species, because of the vulnerability of the species to change as well as the economic importance of the fisheries on hakes;
- seals as a general ecosystem vulnerability indicator;

[1] FAO. (forthcoming). *Report of the BCC–FAO Regional Workshop on Assessing Climate Change Vulnerability in Fisheries and Aquaculture. Windhoek, Namibia, 11–13 April 2013*. Rome.

- possible snoek distribution and abundance changes and the potential impacts on small-scale fisheries across the three countries;
- similar concerns were expressed in connection with the potential impacts on lobster resources and fisheries, horse mackerel (Cunene and Cape), *Sardinella aurita* and *S. madeira*, deep-sea red crab, dusky cob and sardine;
- changes in seabirds' migration and conservation status, for example, caused by changes in food sources;
- possible negative impacts on sharks and turtles;
- the impacts of coastal and offshore mining as an additional stress potentially compounding the impacts of climate change;
- implications of climate change for transboundary Ramsar sites and marine protected areas (MPAs).

The following topics were identified under the heading of human and institutional issues (including management):

- transboundary migration by fishers, including implications for human disease (e.g. spread of HIV/AIDS) and gender;
- the impacts of industrial fishing on small-scale fisheries as a stressor to be considered in combination with climate change;
- the availability of alternative livelihoods in small-scale fishing communities and moving towards improved governance at the local level;
- regional allocation of rights and how these may be vulnerable to change;
- vulnerability of transboundary management efforts to climate induced changes.

3. THE ECOSYSTEM APPROACH TO FISHERIES/ECOSYSTEM APPROACH TO AQUACULTURE (EAF/EAA) AND ITS LINKS TO CLIMATE CHANGE

Given the long history of the application of the EAF/EAA in the Benguela region, Ms De Young provided a brief reminder of the EAF principles and management planning steps, and how issues relating to climate variability and change are incorporated into these.

3.1 Principles and purpose of the EAF/EAA

The EAF/EAA is the realization of sustainable development in fisheries and aquaculture (maintaining ecosystem integrity, improving human well-being and equity, and promoting enabling governance) – stressing holistic, integrated and participatory processes. The purpose of an EAF is to plan, develop and manage fisheries and aquaculture in a manner that addresses the multiple needs and desires of societies, without jeopardizing the options for future generations to benefit from the full range of goods and services provided by the aquatic systems. Accordingly, application of the EAF/EAA should respect the following principles:

- Apply the precautionary approach when faced with uncertainty.
- Use best available knowledge, whether scientific, traditional or both.
- Acknowledge multiple objectives and values of ecosystem services.
- Embrace adaptive management.
- Broaden stakeholder participation.
- Use the full suite of management measures.
- Promote sectoral integration and interdisciplinarity.

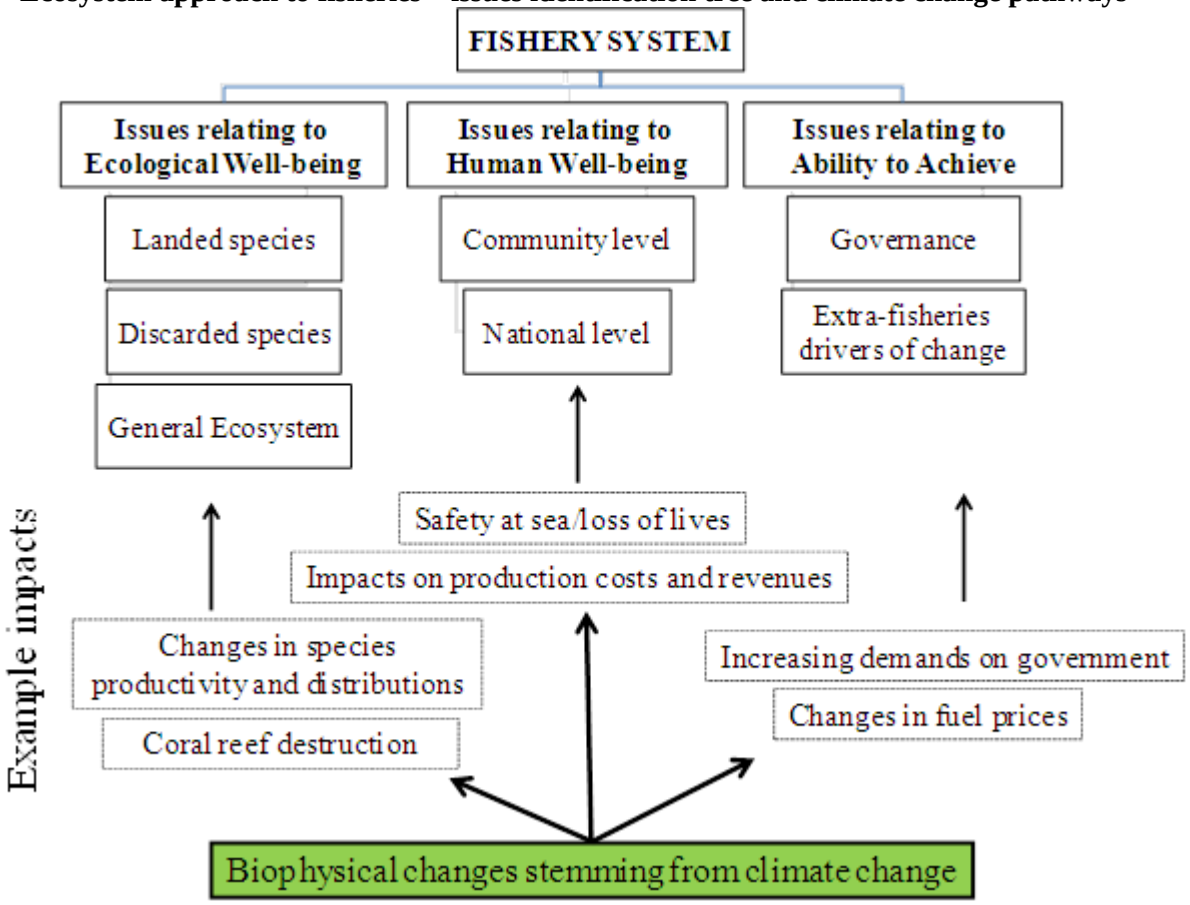
3.2 Using EAF/EAA to identify key climate change issues

As the EAF/EAA calls for a broader and more holistic approach to analysis of issues and management actions, the EAF/EAA management process itself assists in the monitoring of climate change impacts. A key step in any EAF/EAA management plan development process includes the identification of issues (and their prioritization through a risk assessment[2]) that need to be addressed by management, including all direct and

[2] A risk assessment would look at the likelihood of a change occurring and the consequences to ecosystem and human well-being and governance structures if the change arises and would form part of a vulnerability assessment.

indirect impacts of the fishery/farm on the broader system. Included in this process is the identification of any non-fisheries/aquaculture issues (those that are external to the fisheries/aquaculture management system) that are affecting, or could in the future affect, the performance of the system and its management such as climate variability and change. Examples of climate change impacts that can be examined by a typical EAF issue analysis tree are presented in Figure 2. Having the broadened and integrated monitoring system that an EAF/EAA would imply would allow for the monitoring of changes in the aquatic ecosystems and their impacts pathways through the fisheries and aquaculture systems.

Figure 2
Ecosystem approach to fisheries – issues identification tree and climate change pathways



Source: De Young, C., Soto, D., Bahri, T. & Brown, T. 2012. Building resilience for adaptation to climate change in the fisheries and aquaculture sector. *In* A. Meybeck, J. Lankoski, S. Redfern, N. Azzu & V. Gitz, eds. *Building resilience for adaptation to climate change in the agriculture sector. Proceedings of a Joint FAO/OECD Workshop 23–24 April 2012*, pp. 103–116. Rome, FAO. 346 pp. (also available at www.fao.org/docrep/017/i3084e/i3084e.pdf).

3.3 Using EAF/EAA to build resilience to climate change

To build resilience to the effects of climate change and to derive sustainable benefits, as a top priority fisheries and aquaculture managers need to adopt and adhere to best practices such as those described in the FAO Code of Conduct for Responsible Fisheries and the EAF/EAA. Progress in this direction would be an important contribution to maintaining biodiversity, preserving the resilience of human and aquatic systems to change, and improving the capacity to anticipate and adapt to inevitable climate-induced changes in aquatic ecosystems and related fish production systems. Some direct potential benefits of implementing the EAF/EAA include:

- creating resilient ecosystems, human, and governance communities through: (i) decreasing the exposure of the sector by increasing the aquatic systems' resilience, (ii) decreasing the fishing communities' sensitivities to change; as well as by (iii) increasing the sector's adaptive capacity;

- supporting intersectoral collaboration (e.g. integrating fisheries and aquaculture into national climate change adaptation and disaster risk management [DRM] strategies and supporting integrated resource management, such as integrated coastal zone or watershed management, water planning);
- promoting integrated monitoring and information systems – incorporating scientific and local knowledge sources;
- improving general awareness of climate change within and outside the sector;
- promoting context-specific and community-based adaptation strategies;
- avoiding "mal-adaptations" (e.g. overly rigid fishing-access regimes that inhibit fishers' migration, or adaptation actions that would increase fishing effort in an overfished fishery);
- embracing adaptive management, decision-making under uncertainty and the precautionary approach;
- promoting natural barriers and defences rather than hard barriers that would affect the ecosystem.

Improving the general resilience of fisheries and aquaculture systems will reduce their vulnerability to climate change. For example, biodiversity-rich systems are less sensitive to change than overfished and biodiversity-poor systems. Healthy coral reef and mangroves systems provide, *inter alia*, natural barriers to physical impacts. Fisheries and aquaculture-dependent communities that have strong social systems and a portfolio of livelihood options have higher adaptive capacities and lower sensitivities to change than those without. Larger-scale production systems under effective governance systems and with high capital mobility would tend to be more resilient to change in that they may more easily, for example, switch gear types or fishing zones and timing to adapt to changes in fish availability.[3] And so on.

In addition, by assisting in improving understanding about the role of aquatic systems as natural carbon sinks and how fisheries affect this role, and by supporting a move to environmentally friendly and fuel-efficient fishing, aquaculture and post-harvest practices, implementing the EAF/EAA will also feed into global greenhouse gas mitigation efforts.

4. OVERVIEW OF VULNERABILITY ASSESSMENT METHODOLOGIES

Ms De Young presented the results of a recent PaCFA global expert workshop on vulnerability assessment methodologies and their relevance to fisheries and aquaculture.[4] Vulnerability assessments play an important role in the climate change adaptation process in that they link physical changes (either current or projected) with the ability of aquatic and human systems to cope or benefit from such change. In general, a vulnerability assessment helps to target adaptation actions by better understanding: **who** the vulnerable people and/or species are and how their vulnerability can be reduced; **where** the vulnerable ecosystems are and whether resource management can improve their capacity to adapt; **where** the economic consequences of vulnerability of fishery systems will be felt most, and how to plan to minimize those consequences; and **where** climate change will create new opportunities and bring benefits and, importantly, for whom.

In 2001, the Intergovernmental Panel on Climate Change (IPCC) developed a generic model (Figure 3) to assist in understanding the multiple facets of vulnerability as "a function of the *sensitivity* of a system to changes in climate (the degree to which a system will respond to a given change in climate, including beneficial and harmful effects), *adaptive capacity* (the degree to which adjustments in practices, processes, or structures can moderate or offset the potential for damage or take advantage of opportunities created by a given change in climate), and the degree of *exposure* of the system to climatic hazards".[5] The specific vulnerability questions asked (i.e. vulnerability of whom/what to what changes and why) and the methodologies used to answer these questions will often be influenced by the historical background and

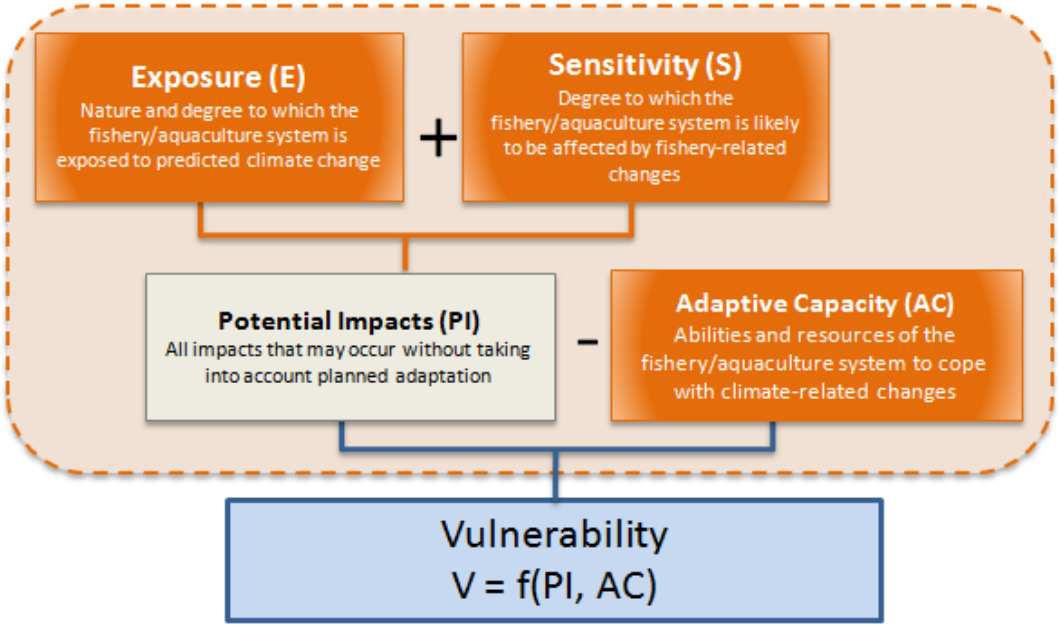
[3] It should be noted that local communities, labour and economies may benefit or lose if companies decide to relocate as an adaptation option.

[4] FAO. 2013. *Report of the FAO/PaCFA Expert Workshop on Assessing Climate Change Vulnerability in Fisheries and Aquaculture: Available Methodologies and their Relevance for the Sector, Windhoek, Namibia, 8–10 April 2013*. FAO Fisheries and Aquaculture Report No. 1047. Rome. 29 pp. (also available at www.fao.org/docrep/018/i3357e/i3357e.pdf).

[5] IPCC. 2001. *Climate Change 2001: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Third Assessment Report of the IPCC*. (also available at https://www.ipcc.ch/ipccreports/tar/wg2/)

disciplinary training of the assessor. That is, an assessment stemming from risk/hazard, resilience or political economy traditions may place different emphasis on the various elements underlying vulnerability, such as whether the hazard itself and its impacts are the main elements of concern or, perhaps, whether differentiating susceptibility to such change is important or whether there are tipping points to such susceptibility. In addition, different disciplines (i.e. natural or social sciences) within these traditions may also frame the vulnerability assessment diversely, such as focusing on the vulnerability of the natural system or of the human system, or whether underlying and existing vulnerability to change determines a system's ability to adapt to a climate-related driver (focusing on the why of vulnerability) versus a more linear impacts assessment approach, and so on. Understanding the array of different perspectives and methodologies would support any future vulnerability assessment.

Figure 3
Generic IPCC vulnerability analysis framework for fisheries and aquaculture systems



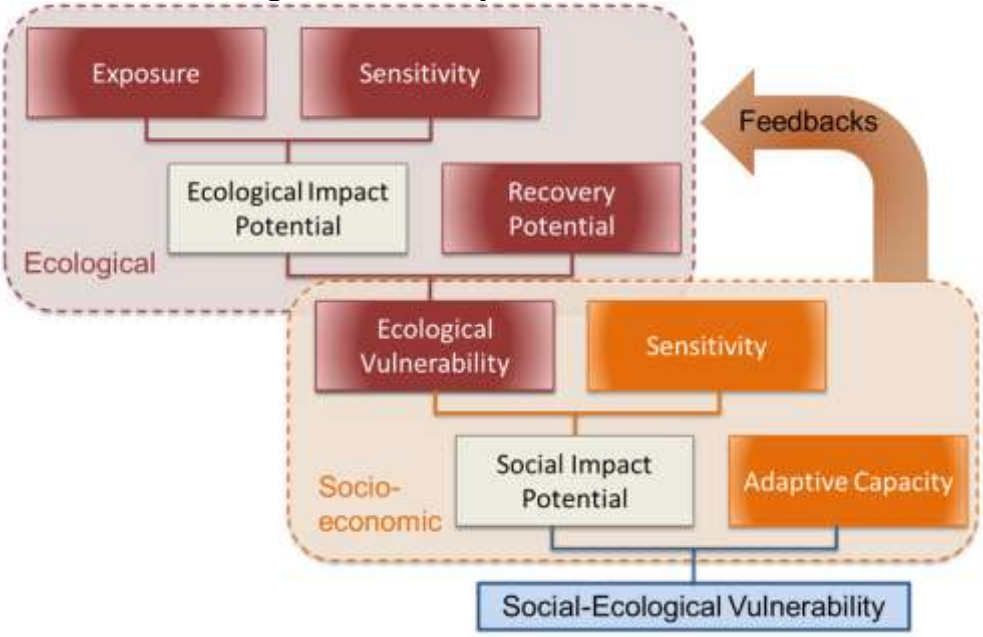
Source: Derived from IPCC. 2001. *Climate Change 2001: Impacts, Adaptation, and Vulnerability*. Contribution of Working Group II to the Third Assessment Report of the IPCC. (also available at https://www.ipcc.ch/ipccreports/tar/wg2/

The fisheries and aquaculture sector is gaining experience in applying the IPCC framework as can be seen through an annotated bibliography of recent assessments in the sector[6] and the experiences shared during the global expert workshop – allowing the workshop participants to develop initial guidance on vulnerability assessment processes for the sector available within the workshop report.

One application of a vulnerability assessment of potential interest in the Benguela region presented during the expert workshop was a study that piloted a modified version of the vulnerability framework used by the IPCC. Specifically, the IPCC framework was advanced by considering explicitly how ecological and social elements of vulnerability are linked. The combination of ecological exposure, ecological sensitivity and recovery potential were considered as determinants of the ecological vulnerability of a site, which in turn can be considered as the exposure experienced by the social system (see Figure 4). Social vulnerability is then understood as a combination of this exposure plus social sensitivity and social adaptive capacity. A quantitative approach was used to evaluate climate change impacts (specifically coral bleaching) in well-studied Kenyan coral reef fisheries. The modified framework was operationalized by developing and testing community-level indicators to build each of the social-ecological vulnerability components. The method provided a useful holistic diagnostic approach that can help identify where critical sources of vulnerability lie, and it should have broad application to other social-ecological systems.

[6] Barsley, W., De Young, C & Brugère, C. 2013. *Vulnerability assessment methodologies: an annotated bibliography for climate change and the fisheries and aquaculture sector*. FAO Fisheries and Aquaculture Circular No. 1083. Rome, FAO. 43 pp. (also available at www.fao.org/docrep/018/i3315e/i3315e.pdf).

Figure 4
Combined social-ecological vulnerability framework



5. PRESENTATION OF THE NANSCLIM PROJECT

Mr. Åsmund Bjordal, director of the Centre for Development Co-operation in Fisheries at the Institute of Marine Research, Norway, presented the objectives, progress and status, with examples of results, of the NansClim project "Climate effects on biodiversity, abundance and distribution of marine organisms". The objective of the project is to identify and describe possible trends in ocean climate and corresponding changes in marine biodiversity and fisheries in the Benguela Current system, using data collected through the Nansen programme together with relevant regional data.

In collaboration with the National Institute of Fisheries Research (Angola), the National Marine Information and Research Centre (Namibia), and the Biodiversity and Ecosystem Research, Department of Environmental Affairs (South Africa), the main questions asked by the project were:

- Are there any identifiable ecosystem changes as a result of climate change?
- How will the distribution and abundance of marine species and communities alter with climate change?
- Which species are candidate indicators for climate change impacts?
- Where are sensitive areas or hotspots of change?
- How will ocean productivity alter with climate change?

Mr Bjordal noted that a weakness of the present EAF–Nansen programme had been a lack of resources for analyses of the collected survey data. The NansClim project financed by Norad was therefore a welcome opportunity to conduct in-depth analyses of the data time series from the Benguela Current ecosystem.

The project has so far produced six scientific publications, and will produce 15–20 more papers, a special volume in the *Fisheries Oceanography Journal* as well as a project synthesis report in 2013. The synthesis will be finalized during a workshop in Namibia in late July 2013 and main results have been presented at the BCC Annual Science Forum in September 2013[7]. The presentation included several examples of results on oceanography, plankton, pelagic and demersal communities, sampling methodology and identification of possible indicator species for climate effects.

[7] http://www.benguelacc.org/index.php/en/activities/the-science-programme/asf-2013

Mr Bjordal also presented the design of the new vessel that will replace the present R/V *Dr. Fridtjof Nansen* in 2016, and informed the participants that an outline of the related new EAF-Nansen programme would be presented at the Annual EAF-Nansen forum –held in Dar es Salam in October 2013.

6. INITIAL VULNERABILITY ANALYSIS IN THE BCLME SOCIO-ECOLOGICAL SYSTEM

Mr Ian Hampton of Fisheries Resource Surveys, South Africa presented the results of a 2011 review of the regional biophysical features and decadal trends in the BCLME as well as an initial vulnerability assessment of the fisheries in the Benguela region.[8] With regard to the overview of the regional biophysical features and decadal trends in the BCLME, Mr Hampton noted the following in his presentation.

The northern regime of the BCLME has tropical features while the southern regime consists of a colder nutrient rich upwelling. Lüderitz, Namibia, has the strongest upwelling in the region. Changes that have occurred/are occurring on a decadal period are primarily:

1. Change in wind speed and direction – intensified in offshore direction in the summer months.
2. Sea surface temperature trends over the same period include:
   – a general warming of surface waters in both the northern and southern part of the system, but a cooling of the inshore waters off western and southern coasts of South Africa, leading to an intensification of cross-shelf sea surface temperature gradients in this part;
   – recurring intrusion of warm, low salinity and low oxygen water down into more southern parts, around Walvis Bay, from the most northern parts (e.g. through Benguela Niños), leading to warming of waters and lowering of oxygen levels (the latter affecting the hake stocks). This is the most important perturbation in the northern Benguela.
3. Chlorophyll concentration (relating to primary production: phytoplankton) – no long-term trend in phytoplankton concentrations has been detected.
4. Trends in oxygen level (primarily in the St Helena Bay area) – oxygen level below thermocline has been declining. This has been extending farther offshore.
5. Zooplankton abundance – this has greatly increased in the southern part since the 1950s, but has declined since 2000. In the northern Benguela, the trend has been less clear since the 1970s, but there has been a noticeable decline since 2000. A reduction in the larger animals may mean changes in overall size structure as well. The cause could be due to changes in the abundance of small pelagic stocks or environmental anomalies.
6. Changes in catches of major resources – all countries have suffered some major declines in catch. Dramatic changes have occurred in the northern parts (essentially, with no small pelagic fish left in this region; and some changes in catch of horse mackerel, hakes, snoek, and rock lobster) and in the southern parts (where the catch of small pelagic fish is not as high as in the 1950s, with some changes in catch of horse mackerel, hakes, snoek, and rock lobster). There are not many detailed data from Angola available, although there has been a decline in sardinella catches.
7. Shift in distribution of sardine and anchovy biomass from west to east of Cape Agulhas between 1985 and 2005 – this was first believed to be the result of climate change but the trend has now been reversed. Hence, it does not look like regime shift, but is possibly caused by environmental changes or fishing pressure on the west coast. Rock lobster has made the same shift.
8. Changes in top predator abundance – in the northern parts, there has been a general increase in seals. Although the population dropped dramatically following a major low oxygen event in 1993/94 and the 1995 Benguela Niño, it recovered rapidly. Gannets have suffered a rapid and continual decline in the northern parts, generally associated with anchovy and sardine decline in Namibia. Penguin populations have declined but are now stable.

Mr Hampton suggested that the most dramatic long-term change in the BCLME was the major decline in exploited resources, which was primarily due to overfishing, not to environmental changes. With regard to prediction of long-term changes, Mr Hampton explained that so far such predictions had not been very good,

[8] For the full reports, see: De Young, C., Hjort, A., Sheridan, S. & Davies, S. 2012. *Climate Change Implications for Fisheries of the Benguela Current Region – Making the Best of Change. FAO/Benguela Current Commission Workshop, 1–3 November 2011, Windhoek, Namibia*. FAO Fisheries and Aquaculture Proceedings No. 27. Rome, FAO. 125 pp. (also available at www.fao.org/docrep/017/i3053e/i3053e.pdf).

but noted that early warning had more chance of success in this system. The difficulty in long-term prediction relates to the wide-ranging natural variability of the system, which makes it very difficult to detect long-term trends related to global climate change. One exception with regard to prediction is the Benguela Niños, which can be predicted up to two months in advance. Furthermore, long-term warming of the sea surface temperature at both extremes of the system as well as cooling of inshore water on the west and south coasts of South Africa is a fact. Finally, Mr Hampton noted that responses to future, unprecedented environmental changes were currently purely conjectural, but could be profound. For example, increased leakage of the Aghulas Current water into the south Atlantic in response to global warming could change the entire upwelling regime.

Based on his review of the biophysical features and decadal trends, Mr Hampton then undertook an initial vulnerability assessment to answer the questions on how vulnerable the exploited fish resources of the BCLME are to climate change, and how vulnerable industries, communities and individuals dependent on these resources are to climatically induced changes in abundance and/or distribution of these resources. Mr Hampton further explained that his assessment had followed an adjusted IPCC framework and evaluated "sensitivity" as the degree to which the resource is likely to be affected by the indicated change, "impact" as the importance of the resource to humans in terms of, for example, commercial value, employment and food security, and "adaptability" as the degree to which industries and people dependent on the resource can adapt to changes in resource abundance and/or availability. The three aspects had been scored for each of the fisheries and multiplied to form a vulnerability index (vulnerability index = sensitivity index × impact index × adaptability index). He noted that the scoring system was subjective, particularly in relation to "sensitivity". Table 1 provides a relative ranking of vulnerability within each country's fisheries based on this analysis.

Table 1
Qualitative within-country vulnerability rankings for Angolan, Namibian and South African fisheries

ANGOLA		NAMIBIA		SOUTH AFRICA	
Fishery	**VI**	**Fishery**	**VI**	**Fishery**	**VI**
Demersal trawl	M	Demersal trawl	H	Hake (including longline) and other trawled species	L
Industrial pelagic	M	Small pelagic	H	Small pelagic	H
Semi-industrial pelagic	H	Mid-water trawl	L	Mid-water trawl	L
Crustaceans	L	Line fishery	M	Line fish (excluding hake long-line)	M
Artisanal	H	Rock lobster	H	Rock lobster	H
		Crab	L	Large pelagic	L
		Recreational	L	Recreational	L
		Artisanal/subsistence	M	Artisanal/subsistence	M

Note: Vulnerability Index (VI) was ranked high (H), medium (M) or low (L) based on a composite indicator of sensitivity, impact and adaptability.

Following this, Mr Hampton gave some examples of how and why he had given certain scores to certain fisheries and also pointed out some extremes, e.g. the low vulnerability of the foreign-operated Namibian mid-water trawl fishery and the high vulnerability of the artisanal fishery of Angola. Mr Hampton concluded that large, highly organized and capital-intensive fisheries were generally the most adaptable ones (one exception being the South African small pelagics fishery, which is sensitive to environmental changes, and also operates with a low profit margin). The most vulnerable fisheries were found to be those with a large number of people living in communities heavily dependent on fish for food and livelihoods, with almost no ability to adapt. More specifically, Mr Hampton explained that his assessment had found the most vulnerable fisheries of the BCLME to be the artisanal and semi-industrial fisheries in Angola, the rock lobster fishery in South Africa (and to a lesser extent in Namibia), and the small-scale line fishery in South Africa. He then

suggested some measures that could contribute towards increasing adaptive capacity, including research aimed at better prediction of environmental changes and responses to them. Finally, he proposed some ways of adapting to reduced abundance or availability of stocks such as changing target species, improving catching, processing and distribution efficiency, and improving product value.

In the ensuing discussion, the following points were made (not necessarily in order of importance):

- The information on which the initial vulnerability assessment was based (which is now three years out of date) needs to be updated with new data and more-recent perceptions.
- There has to be far greater participation from stakeholders in future vulnerability assessments.
- The possible effects of climate change on mariculture activities within the BCLME, which could be different in nature to the effects on capture fisheries, need to be considered, and included in future vulnerability analyses.
- Future analyses should also consider the direct impacts of climate change on fishing communities (e.g. threats to infrastructure) and on post-harvest (e.g. marketing and trading) activities, not solely the indirect impacts resulting from the effects on the resources.
- The ecological and socio-economic vulnerabilities need to be investigated in greater depth and in greater detail.

7. CLIMATE CHANGE RISKS TO BENGUELA CURRENT FISHERIES AND AQUACULTURE OBJECTIVES

After discussing the likely risks from climate change over the next 10–20 years in small groups, the workshop reviewed the reports from the small groups and agreed on the following priorities:

7.1 Objectives for fisheries and aquaculture in the Benguela Current system

Climate change was considered to be an additional risk that needed to be taken into account in current and future efforts in the three countries and the region as a whole. Existing efforts were aimed at:

- promoting sustainable use of regional and national fisheries and ensuring stability of the resources, including their recovery where necessary;
- improving the contribution of the fisheries sector to economic development, in supporting employment and livelihoods, and in contributing to regional and local food and nutritional security;
- the conservation of marine ecosystems and biodiversity;
- increasing the contribution of aquaculture to economic development and provision of livelihoods and as a means of diversifying production systems;
- ensuring social justice and access through distributional equity;
- creating effective governance, including the harmonization of legislative and policy frameworks.

It was recognized the distributional shifts in fish stocks and resources as well as other impacts of climate change could introduce additional conflicts between different stakeholders, both within the fisheries sector and between fisheries, aquaculture and other users of aquatic and coastal resources. There is a need to plan for and minimize such conflicts.

7.2 Potential impacts of climate change and variability to reach these objectives

The workshop identified a number of impacts of climate change that could affect progress towards achieving the above objectives. Coastal communities are vulnerable both through climate change impacts on the resources on which they depend for their livelihoods as well as from direct impacts from storm surges, floods and other extreme events. It was noted that climate change is one of many drivers of the high vulnerability of coastal communities, particularly communities engaged in small-scale fisheries, and that adaptation actions in these cases should be aimed at general resilience building, in addition to adaptation that focused on climate-change impacts.

Aquaculture has considerable development potential and could both serve as a potential adaptation mechanism while at the same time being itself exposed to threats and opportunities from climate change. Similarly, aquaculture could be both a potential threat and of benefit to capture fisheries depending on circumstances and whether or not activities were well planned. For example, the use of juveniles in the coastal zone for aquaculture could be a risk to fisheries and affect the ecosystem and environment, while on

the positive side aquaculture could reduce overexploitation by providing an alternative livelihood and could be used as a means of stock enhancement.

The discussions highlighted the importance of building capacity among all stakeholders to understand, analyse and adapt to climate change impacts. The three BCC countries are facing many development challenges, and it is essential to work simultaneously towards strengthening current resilience and reducing existing vulnerabilities and adaptation to future climate change. It is important to take note of and work at the range of spatial and time scales.

7.3 Goals of project:

In discussing the goals of the project, the following points were raised:

- The project must aim at adaptation on the ground, and project activities, including vulnerability assessments, should strive to support existing efforts and not to create undue diversion away from existing efforts to into a new and unrelated set of activities.
- It is important to raise the profile of the fisheries and aquaculture sector in national climate change planning. It was noted that providing vulnerability baselines at the national levels would help to do this.
- The project could assist in promoting and securing small-scale fisheries to increase their resilience. Attention was drawn to the FAO voluntary international guidelines on small-scale fisheries.
- It would be of value to improve social and economic information on communities and to capture traditional and other knowledge and perceptions from fishing communities. This new information could assist in management and decision-making at community levels and higher. This could be achieved through participatory knowledge systems development and combining this knowledge with scientific information to support adaptation planning.
- The project should contribute to providing examples of good practices, thereby reducing the risks of implementing mal-adaptations, rather than focusing mainly on assessing available information and information gaps.

8. SCOPING WORK TO ASSESS TRANSBOUNDARY IMPACTS AND VULNERABILITY AND ADAPTATION

8.1 Impacts and vulnerabilities

To assist the project in identifying and addressing transboundary impacts and vulnerabilities, the participants broke into small working groups for an initial scoping to identify transboundary issues for consideration as targets for the project's vulnerability assessments. The issues raised ranged from reported changes in the physical and chemical environment to their impacts on the resources and the people, sectors and institutions. Transboundary impacts related to food security and economic growth were raised, as well as the ability of the region to cope with these changes. The working groups began to define the transboundary vulnerability priority questions to be addressed during the BCLME vulnerability assessment, specifically: Who is vulnerable to what and why, and what are the constraints to adapting?

Fisheries systems could be vulnerable to a number of different possible impacts from climate change such as:

- Vulnerability to shifts in distribution from regime changes or longer-term climate change that could affect the availability of key resources and the costs of fishing. These shifts could occur across national boundaries resulting in transboundary impacts, for example, with migratory species, hake, horse mackerel, and others.
- Extreme events, such as storm surges, and sea-level rise could lead to loss of infrastructure, public health problems and coastal erosion.
- Ocean acidification could lead to retarded shell growth in molluscs, which are important for aquaculture across the region.
- Climate change could have impacts on estuaries and rivers, with consequences for coastal ecosystems because of, for example, their common role as nursery habitats, sources of land-based pollution, etc.

- Any or all of the above impacts could have consequences for food security, lead to forced change in livelihoods, threaten employment and incomes and could also influence national initiatives on aquaculture development.

While not all of these impacts would lead to a need for transboundary action and decision-making, they could be common to two or all three countries, in which case transboundary cooperation and information sharing could lead to more-effective responses. The rapid development of the mining and hydrocarbon extraction industries in the three countries was also seen as having transboundary implications that need to be considered alongside climate change. Legislative and governance frameworks, as well as relevant data management systems, need to be adapted where required to accommodate possible future transboundary impacts.

On the question of the "who" could be vulnerable, the workshop highlighted: the biological resources, ecosystems and critical habitats; coastal communities; fisheries of all scales; mariculture and coastal aquaculture enterprises; and local and national economies.

8.2 Assessing vulnerability

There are a number of vulnerability assessment and risk assessment frameworks already in common use (see, for example, FAO Fisheries and Aquaculture Report No. 1047[9]) that could be used within the Benguela region. The workshop agreed that it should identify, adapt as necessary and apply the best practices globally. Some important considerations in assessing vulnerability included, for example, questions on how to identify communities, the value of local level participatory assessments, challenges in assessing adaptive capacity, and the importance of traditional knowledge. The project would also need to consider the need for replication and possible upscaling of methods and results. The vulnerability assessments could be undertaken by the BCC, government departments of Namibia, Angola and South Africa, other relevant stakeholders such as NGOs and civil society organizations or other suitable bodies and organizations, as appropriate for each case.

8.3 Adaptation options

The adaptation options would be unique to each case and there could be no generic approaches. Examples that were raised were:

- Decrease fishing effort to ensure sustainable use of resources adversely affected by climate change and switch target species to take advantage of species that had been positively affected.
- Ensure availability and take advantage of alternative livelihoods.
- Ensure adaptive flexibility in regional fisheries agreements, for example in the BCC, to be able to accommodate transboundary distributional shifts.
- Make available insurance policies for fisheries and mariculture, provision of subsidies as necessary (provided they did not lead to over-exploitation), accessible loans to facilitate livelihood changes within or outside the fishery sector, and others,
- Regional monitoring of disease could be important to allow for rapid control of outbreaks.

8.4 Constraints to adaptation

A widespread lack of preparation for adaptation to climate change was recognized as an important constraint. This had resulted in: (i) the absence of early warning systems for impending short- and longer-term threats; (ii) insufficient knowledge and widespread lack of awareness on climate change and the need for adaptation to its impacts on coastal social-ecological systems; (iii) insufficient human and financial resources dedicated to climate change preparations; and (iv) administrative fragmentation and other inefficiencies.

[9] FAO. 2013. *Report of the FAO/PaCFA Expert Workshop on Assessing Climate Change Vulnerability in Fisheries and Aquaculture: Available Methodologies and their Relevance for the Sector, Windhoek, Namibia, 8–10 April 2013*. FAO Fisheries and Aquaculture Report No. 1047. Rome. 29 pp. (also available at www.fao.org/docrep/018/i3357e/i3357e.pdf).

9. SOLIDIFYING THE PROJECT PREPARATION PHASE

FAO and the BCC reminded the workshop of the project preparation process, provided an overview of the PIF framework (Appendixes 1 and 4) and explained the work plan for project preparation that had been agreed between the BCC, FAO and GEF (Appendix 5), and for which the GEF had provided a project preparation grant (PPG) that would be used to fund the various preparation activities. The key events for the project preparation are:

- national workshops to be held in each country;
- a validation workshop to which senior officials from the departments in each country responsible for the project would be invited to review the draft final project proposal and approve it for submission to the GEF.

Under the GEF requirements for this project, the deadline for submission of the final project document to GEF was 30 April (this has recently, after the Inception Workshop, been postponed to 30 May 2014). All the other activities and tasks need to be scheduled in accordance with the need to meet this deadline.

Noting that the initial Vulnerability Analysis workshop had been held in Windhoek and this Inception Workshop in Cape Town, it was agreed that the final regional workshop during the preparation phase, the Validation Workshop, would be held in Angola. The workshop proposed that this should take place at the end of November 2013 but, with the subsequent postponement of the deadline for submission of the project document, this has now been rescheduled for March or April 2014.

10. PLANNING FOR THE NATIONAL WORKSHOPS - WHO, WHAT, WHERE AND WHEN?

Ms De Young introduced this agenda item, providing a provisional agenda outline, for discussion, that would enable the workshops to achieve their objectives. She explained that the agenda for each national workshop would need to include the following items:

- introduction to the project;
- agreement on outputs and national-level activities, including identifying partners for activities;
- identifying risks to project implementation;
- cofinancing possibilities.

After discussion on the purpose and structure of the national workshops, the meeting split into national groups to begin planning for the national workshops, and subsequently reported back to plenary.

10.1 Report from the Angola group

The following important stakeholders who should be invited to the national workshop were identified: the Ministries of Fisheries, Transport, Tourism and Defence; representatives of both the public and private sectors in the oil and gas industry and in the mining/diamonds industry; representatives from the fishery sector including industrial, semi-industrial and artisanal; fishing communities; and Telecommunication – INAMET. A number of other potential partners were also identified: Ministries of Health, Finance and Justice, INE, Universities, Norad, banks, BCC, FAO, UNDP, Southern African Development Community (SADC), South East Atlantic Fisheries Organisation (SEAFO), International Commission for the Conservation of Atlantic Tunas (ICCAT), Guinea Current Large Marine Ecosystem (GCLME) Project and NGOs. Of these, the BCC, FAO, the fisheries ministries of the three countries and the GEF were identified as the "champions" that would drive the project.

The Angola group recognized the importance of ensuring adequate resources for planning and implementation of the project. This would include ensuring sufficient human and financial resources, data availability, and opportunities for capacity building and technology transfer. It would be necessary to appoint a national coordinator to ensure effective delivery of the project. The group also explained that: "For the success and implementation of the project and the national workshop, we need all the documentation translated in Portuguese, to empower the Angolan delegation into the discussion on the workshops."

The group also elaborated on the key points provided by Ms De Young for the agendas for the national workshops as follows:

- Session 1: Introducing the project: a brief presentation of the project, its objectives and outputs/results, identification of people that should be involved, schedule of the main activities, monitoring and control of the project, reporting.
- Session 2: Presentation of national action plans, overview of artisanal fisheries and aquaculture activities in Angola and current legislations/law/policies: presentation of Fisheries National Action Plan (Ministry of Fisheries), NAPA for Climate Change (Project 4: Study the Vulnerability of Fisheries Sector Climate Change Current Modifications, Ministry of Environment), Artisanal Fisheries and Aquaculture – IPA, DNA, Legislation, Policies, Law – Justice.
- Session 3: Definition of the project activities and partners: working group session reporting by working groups to plenary and discussions.
- Session 4: Cofinancing possibilities: working group session reporting by working groups to plenary and discussions.
- Session 5: Identification of the risks to project implementation: working group session with an international project manager consultant, reporting by working groups to plenary and discussions.
- Session 6: Conclusions and recommendations.

It was agreed that the workshop would be held in Luanda on a date still to be decided.

10.2 Report from the Namibia group

The following important stakeholders who should be invited to the national workshop were identified:

1. Industry: fishery and aquaculture (Namibia Fishing Confederation)
2. Decision- and policy-makers: Ministry of Fisheries and Marine Resources (MFMR), MET, MME, MIT, ML
3. Regional authorities: Erongo, Karas, Kunene
4. Local authorities: Walvis, Luderitz, Swakopmund, Oranjemund, Henties Bay
5. UNAM (Dept of Fishery & Aquatic Science, Environmental Sciences, Social Sciences, Biology, MRCC, SANUMARC
6. PON: Natural Resources & Tourism, REEEI
7. NACOMA
8. SEAFO
9. BCC
10. Integrated Environmental Consultants Namibia (IECN)
11. UNDP Namibia
12. LARRI:
13. IPPR: Institute Public Policy and Research
14. Centre for Environment and Natural Resources
15. Namibia Fish Consumption Promotion Trust
16. Fishery Observer Agency (FOA)
    FAO Namibia

Additional stakeholders to involve include:

1. NAMDEB
2. Chamber of Mines
3. Namibia Statistical Agency (NSA)
4. NPC
5. Parliamentary Standing Committee on ENR & Public Administration
6. National Climate Change Committee (NCCC)
7. MWT: Meteorological and Maritime Affairs

8. Bank of Namibia, FNB, SBN, Development Bank of Namibia
9. NAMPORT
10. Media: MEAD, MISA
11. Namibia Council of Churches (NCC)

Of these, the MFMR would be the "champion" of the project and would be the main driver of its implementation. The group proposed the national workshop be held the last week of October (subsequently postponed until March) and that it should be held at the Swakopmund Hotel and Entertainment Centre.
Relating to the workshop agenda items proposed above, the group proposed the following details:

1. Introducing the BCC Climate Change Adaptation Project:

Background: BCC and FAO to give a presentation on the proposed project;
Presentation by MET on National Climate Change Policy;
Presentation by IECN on the Draft Strategy & Action Plan;
The MFMR to give a presentation on the Ministerial Strategic Plan/EAF (perhaps to address the climatic variability) and focus on the management of the resources;
A presentation to build understanding on the impacts of climate variability and change on the Namibia coast and marine, or global (Rod Braby, Christ Bathroleum, Anja vander Plaas).

2. Agreement on project outputs and national-level activities, including identifying partners for activities (output will be a table):

Three group works: per project Component: 1. MFMR/PPE, 2. IECN, 3. UNAM.

3. Identifying risks to project implementation:

Presentation on the initial risks and assumptions, as per PIF, then refine and add new risks if foreseen, including the assumptions.

4. Co-financing possibilities:

In-kind budget contributions by the MFMR, and other relevant organizations, and allocated to different outcomes and outputs.

10.3 Report from the South Africa group

The South Africa group identified the following stakeholders and partners for the project, who should therefore be invited to the national workshop:

- Fishing industry (industrial/large scale fishery);
- Artisanal fishery / small-scale;
- Government departments (Department of Agriculture, Forestry and Fisheries [DAFF], DTI, SANBI, Department of Environmental Affairs [DEA], Environmental Monitoring Group [EMG], Cooperative Governance and Traditional Affairs, Local Government);
- Academic and research institutes (University of Cape Town, University of Western Cape, Council for Scientific and Industrial Research, Rhodes University, NMMU, SAEON);
- NGOs (WWF, SAMSA, Coastal Links, Masifundise, EMG);
- Provincial coastal management branches;
- Aquaculture producer organizations;
- Fisheries consultants (CAPFISH, OLRAC).

Of these, the key partners were identified as the BCC, FAO, WWF, GEF and Oxfam, while the DAFF would be the "champion" of the project and would be the main driver of its implementation.

The proposal from this group was that the national workshop should be held in the first week of October (subsequently postponed until the end of November) and that it should be held at the DAFF Fisheries Branch offices. It was agreed that a questionnaire should be prepared and distributed to invitees prior to the workshop to facilitate awareness creation prior to the workshop and to obtain feedback from the participants as useful background information for the workshop discussions. The DAFF representatives noted the heavy workload that preparing for the workshop would entail and proposed that a consultant should be hired to assist with these. Ian Hampton was proposed for consideration as the consultant.

11. CLOSURE OF THE MEETING

Dr Hashali Hamukuaya, on behalf of the BCC, thanked all the participants for their valuable contributions to the discussions and for helping to move the preparation of this important project forward. He declared the meeting closed at 13.00 hours on 5 July 2013.

APPENDIX 1

LDCF/SCCF PROJECT CONCEPT FOR ENHANCING CLIMATE CHANGE RESILIENCE IN THE BENGUELA CURRENT FISHERIES SYSTEM

PROJECT IDENTIFICATION FORM (PIF)[1]
PROJECT TYPE: FULL-SIZED PROJECT
TYPE OF TRUST FUND: LDCF, SCCF

PART I: PROJECT IDENTIFICATION

Project Title:	**Enhancing Climate Change Resilience in the Benguela Current Fisheries System**		
Country(ies):	Angola, Namibia and South Africa	**GEF Project ID:**[2]	5113
GEF Agency(ies):	FAO	**GEF Agency Project ID:**	619123
Other Executing Partner(s):	Benguela Current Commission (BCC)	**Submission Date:**	September 19, 2012
GEF Focal Area (s):	Climate Change	**Project Duration (months):**	60
Name of parent program (if applicable): ➢ For SFM ☐		**Agency Fee:**	472,500

A. FOCAL AREA STRATEGY FRAMEWORK[3]:

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Trust Fund	Indicative Grant Amount ($)	Indicative Co-Financing ($)
CCA-1	Outcome 1.1: Mainstreamed adaptation in broader development frameworks at country level and in targeted vulnerable areas Outcome 1.2: Reduced vulnerability in development sectors Outcome 1.3: Diversified and strengthened livelihoods and	Output 1.1.1: Adaptation measures and necessary budget allocations included in relevant frameworks Output 1.2.1: Vulnerable physical, natural and social assets strengthened in response to climate change impacts, including variability Output 1.3.1: Targeted individual and community livelihood	SCCF LDCF SCCF LDCF SCCF LDCF	268,000 150,000 536,000 300,000 536,000 300,000	936,000 400,000 1,872,000 800,000 1,872,000 800,000

[1] It is very important to consult the PIF preparation guidelines when completing this template.
[2] Project ID number will be assigned by GEFSEC.
[3] Refer to the reference attached on the Focal Area Results Framework when filling up the table in item A.

	sources of income for vulnerable people in targeted areas	strategies strengthened in relation to climate change impacts, including variability			
CCA-2	Outcome 2.1: Increased knowledge and understanding of climate variability and change-induced risks at country level and in targeted vulnerable areas Outcome 2.2: Strengthened adaptive capacity to reduce risks to climate induced economic losses Outcome 2.3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	Output 2.1.1: Risk and vulnerability assessments conducted and updated Output 2.1.2: Systems in place to disseminate timely risk information Output 2.2.2: Targeted population groups covered by adequate risk reduction measures Output 2.3.1: Targeted population groups participating in adaptation and risk reduction awareness activities.	SCCF LDCF SCCF LDCF SCCF LDCF	615,200 348,800 461,400 261,600 461,400 261,600	2,120,000 908,000 1,590,000 681,000 1,590,000 681,000
Sub-Total				4,500,000	14,250,000
Project management cost[4]				225,000	400,000
Total project costs				4,725,000	14,650,000

B. PROJECT FRAMEWORK

Project Objective: To build resilience and reduce vulnerability of the Benguela Current marine fisheries systems to climate change through strengthened adaptive capacity and implementation of participatory and integrated adaptive strategies in order to ensure food and livelihood security.

Project Component	Grant Type	Expected Outcomes	Expected Outputs	Trust Fund	Indicative Grant Amount ($)	Indicative Co-financing ($)
1. Integrating fisheries climate change considerations into fisheries policies and planning as well as into broader inter-sectoral development and climate change policies and programmes.	TA	1.1 Regional and national authorities, as well as major stakeholder groups, informed of vulnerabilities across the region to predicted impacts of climate variability and change Indicator: Risk information disseminated to target stakeholder groups (men and women) and regional and national authorities (as defined in the LDCF/SCCF AMAT)	1.1.1 Participatory and integrated vulnerability assessments of fisheries and fishery-dependent communities undertaken for all three countries (using methodology and approach developed during project preparation) and results disseminated. 1.1.2 Adaptation actions identified and prioritized with broad	SCCF LDCF	1,029,000 581,000	4,337,200 1,855,000

[4] GEF will finance management cost that is solely linked to GEF financing of the project.

			stakeholder involvement for at least 50% of the most vulnerable fishery systems. 1.1.3 Vulnerability assessment and planning processes incorporated into the Benguela Current Commission SAP and in the planning and managing frameworks of the National Authorities in all three countries to ensure vulnerability assessments and relevant adaptation plans and actions are updated every 3-5 years	SCCF LDCF		
		1.2 Climate change adaptation in fisheries and fishery-dependent communities mainstreamed into broader sectoral, food-security and climate change frameworks in all of the three countries Indicator: Number of national and regional policies that incorporate climate change adaptation in fisheries (target to be defined during project preparation)	1.2.1 Gaps and opportunities for mainstreaming climate change adaptation in fisheries into national and regional food security, development, climate change and related policies identified in consultation with decision-makers. Draft policies, or addenda to existing policies, submitted to the National Authorities and BCC for adoption 1.2.2 Working through the multi-sectoral BCC and its national member Ministries, opportunities will be created for inter-agency/inter-sectoral communication and joint discussion on vulnerabilities and adaptation requirements and strategies, including participatory workshops; thereby strengthening cross-sectoral collaboration and facilitating multi-disciplinary cooperation to anticipate and respond to adaptation needs		441,000 249,000	1,858,800 795,000
2. Piloting of	TA	2.1 Vulnerability to	2.1.1 Based on outputs	SCCF	384,000	990,800

improved climate-resilient fisheries practices.		climate change and variability reduced in local, small-scale fisheries and fishing communities identified as being at high risk, considering all stages from production through to post-harvest and trade Indicator: Vulnerability and risk perception index disaggregated by gender has increased from 1/2 (extreme/high vulnerability) to 3/4 (medium/low vulnerability) in targeted fishing communities	1.1.1 and 1.1.2, stakeholder- and community-based adaptation action plans (addressing, as necessary, resource management, social and economic responses, governance issues, alternative and diversified livelihoods, local monitoring and surveillance systems), piloted in at least six high-risk local fisheries or communities	LDCF	216,000	424,000
		2.2 National and regional institutions are prepared and have the capacities for integration of climate change adaptation (CCA) in fisheries in practice, based on thorough consultative planning processes	2.2.1 Management plans developed or strengthened to incorporate monitoring and adaptive response to climate variability and change in at least 3 national or regional fisheries	SCCF LDCF	288,000 162,000	743,100 318,000
		2.3 Strengthened institutions and frameworks for effective monitoring and early warning to facilitate contingency planning at the regional and national levels	2.3.1 Existing national and regional frameworks for monitoring, processing and disseminating information on extreme weather events and climate-induced risks in fisheries (e.g. incidence of Benguela Niños, low oxygen events, severe storms) analysed, in collaboration with national agencies and the BCC. Any existing gaps and limitations identified and addressed through, for example, training in relevant skills, identification of additional specialised staff required, creation of focal points for cross-institution collaboration, and identification of equipment or infrastructure needed	SCCF LDCF	288,000 162,000	743,100 318,000
3. Capacity building and promotion of improved	TA	3.1 At least 50% of stakeholders and other affected individuals have moderate to high	3.1.1 Targeted, user-friendly information on impacts, risks and vulnerability to climate	SCCF LDCF	128,000 72,000	357,600 153,200

climate-resilient fisheries practices		understanding and awareness (as defined in the SCCF/LDCF AMAT disaggregated by gender) of likely adverse impacts of climate change and variability on the fishery sector and appropriate response measures 3.2 Local, national and regional institutions have strengthened capacity to reduce vulnerability to climate-induced risks through inclusion of adaptation into fisheries and multi-sectoral planning and management processes	change and variability and adaptive responses has been produced and disseminated to national and regional stakeholders, and to local communities in the most highly vulnerable areas 3.2.1 Knowledge and understanding of at least 300 stakeholders from communities strengthened through targeted training on climate change risks and best adaptation practices in fisheries 3.2.2 Knowledge and understanding of at least 150 stakeholders from government, universities, non-governmental organizations and industry strengthened through targeted training on climate change risks and best adaptation practices in fisheries 3.2.3 Results and best-practices arising from pilot and other project activities synthesized and shared within Benguela Current fisheries stakeholders, other African Large Marine Ecosystems (LMEs), regional fisheries bodies (RFBs) and economic communities (RECs), NEPAD Agency and other African high-level technical and policy fora	SCCF LDCF	192,000 108,000	536,400 229,800
4. Monitoring and Evaluation	TA	4.1 Project implementation based on results-based management monitored and continually evaluated to ensure successful achievement of project objective, outcomes and outputs.	4.1.1 Project monitoring system established and functioning efficiently to provide systematic information on progress in meeting project outcome and output targets, and adjustment of approaches as required to ensure this 4.1.2 Midterm and final	SCCF LDCF	51,200 28,800	165,200 70,800

		4.2 Application in future planning and operations of project findings and lessons learned facilitated	evaluations conducted 4.2.1 Project-related "best-practices" and "lessons-learned" assessed, published and disseminated 4.2.2 Website developed and maintained to share experiences and to facilitate awareness creation and information dissemination	SCCF LDCF	76,800 43,200	247,800 106,200
Sub-Total					4,500,000	14,250,000
Project management Cost					225,000	400,000
Total project costs[4]					4,725,000	14,650,000

C. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME IF AVAILABLE, ($)

Sources of Co-financing	**Name of Co-financier**	**Type of Co-financing**	**Amount ($)**
GEF Agency	FAO	Grant	150,000
GEF Agency	FAO	In-kind	500,000
Executing partner	Benguela Current Commission (BCC)	Grant	80,000
Executing partner	BCC	In-kind	700,000
National Government	Angola	In-kind	5,000,000
National Government	Namibia	In-kind	3,000,000
National Government	South Africa	In-kind	5,000,000
GEF Agency	UNDP	In-kind	20,000
Bilateral Aid Agency	BCC/ECOFISH project	In-kind	100,000
Bilateral Aid Agency	BCC/NansClim project	In-kind	100,000
Total Co-financing			14,650,000

D. GEF/LDCF/SCCF RESOURCES REQUESTED BY AGENCY (IES), FOCAL AREA(S) AND COUNTRY[1]

GEF Agency	**Type of Trust Funds**	**Focal Area**	**Country Name**	**(in $)**		
				Project amount (a)	**Agency Fee (b)**	**Total c=a+b**
FAO	SCCF	Climate Change	Namibia	1,512,500	151,250	1,663,750
FAO	SCCF	Climate Change	South Africa	1,512,500	151,250	1,663,750
FAO	LDCF	Climate Change	Angola	1,700,000	170,000	1,870,000
Total Grant Resources				4,725,000	472,500	5,197,500

[1] In case of a single focal area, single country, single GEF Agency project, and single trust fund project, no need to provide information for this table

PART II: PROJECT JUSTIFICATION

A. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:

A.1.1. THE GEF FOCAL AREA OR SCCF/LDCF STRATEGIES:

The project is consistent with the "*Strategy on Adaptation to Climate Change for the Least Developed Countries Fund [LDCF] and the Special Climate Change Fund [SCCF1*". In particular, by assessing the vulnerability of fisheries and fishery-dependent communities, piloting appropriate climate-resilient fisheries practices and building adaptive capacity at all levels from local and national (local, national and regional), the project will contribute to the achievement of CCA *Objective 1: Reduce vulnerability to the adverse impacts of climate change, including variability, at local, national, regional and global level* and CCA *Objective 2: Increase adaptive capacity to respond to the impacts of climate change, including variability, at local, national, regional and global level* and their associated outcomes. In conformity with these strategies, the project will build resilience and reduce vulnerability of the Benguela Current marine fisheries systems by facilitating strengthened adaptive capacity at all levels from local and national to regional.

A.1.2. FOR PROJECTS FUNDED FROM LDCF/SCCF: THE LDCF/SCCF ELIGIBILITY CRITERIA AND PRIORITIES:

Country ownership: The three countries of the Benguela Current region, Angola, Namibia and South Africa, ratified the UNFCCC in 2000, 1995 and 1997, respectively, and are classified among the non-Annex 1 parties. These countries have developed and submitted their National Communications. Angola has also prepared a National Adaptation Programme of Action (NAPA). They are therefore entitled to benefit from the SCCF Fund for the implementation of priority measures identified in their respective climate change strategies while Angola is also eligible for funding from LDCF. In implementing priority interventions identified in the NAPA and National Communications, the project is consistent with the Conference of Parties (COP-9) and also satisfies criteria outlined in UNFCCC Decision 7/CP.7 and GEF/C.28/18.

The project concept has been developed ensuring a high degree of country ownership and conformity with their programs and policies. It focuses on adaptation, which is the priority of both SCCF and LDCF. It will pursue a holistic approach to addressing vulnerabilities in the fisheries sector and increasing resilience. The project will address several of the priority areas of the two Funds, in particular support to capacity building including institutional capacity, food security, natural resource management, and support in implementation of Angola's NAPA.

Compliance with programme and LDCF/SCCF Fund policies: The project complies and draws its focus from urgent needs identified in the NAPA and National Communications which are directly relevant for supporting national development goals.

Institutional Synergy and Coordination: The project activities will be primarily implemented through the Benguela Current Commission (BCC), the pre-eminent body in the region with a mandate and responsibility for coordinating activities related to cross-sectoral and ecosystem-wide management of the shared marine resources of the region, including undertaking relevant research. The BCC is an inter-governmental organization and works with the national authorities in the three member countries responsible for key sectors using and impacting on the marine environment. It has been established to achieve regionally defined objectives related to, amongst others, fisheries utilization and management, conservation of marine biodiversity, minimizing and correcting environmental impacts from activities such as marine prospecting, mining and dredging and the exploration and development of oil and gas fields, and others, as outlined in the BCC Interim Agreement and the Strategic Action Plan (SAP). Angola, Namibia and South Africa will sign a binding legal instrument within the next few months that will establish a comprehensive framework to facilitate the implementation of an ecosystem approach to the conservation and development of the Benguela Current Large Marine Ecosystem. The project is focused on strengthening the capacity of the BCC, the national agencies that it works with, and other local, national and regional entities in the Benguela Current region to reduce vulnerability and to strengthen the capacity at all scales for adaptive management and decision-making in the face of climate change. This will include assessing and understanding the vulnerability of fisheries and dependent communities at different scales and monitoring of climate variability and change.

Modalities of the institutional coordination will be detailed in the project document prepared during the PPG phase with the full participation of key stakeholders in each country including GEF OFP, UNFCCC FP,

regional, national and provincial Government, private sector, civil society, research and other development partners.

A.2 NATIONAL STRATEGIES AND PLANS OR REPORTS AND ASSESSMENTS UNDER RELEVANT CONVENTIONS, IF APPLICABLE, I.E. NAPAS, NAPS, NBSAPS, NATIONAL COMMUNICATIONS, TNAS, NIPS, PRSPS, NPFE, ETC.:

The project builds on and is consistent with the perspectives, priorities and particular concerns of Angola, Namibia and South Africa in relation to fisheries, the marine environment and climate change. These have been presented as follows:

- **Angola** submitted its National Adaptation Programme of Action (NAPA) in December 2011 and its Initial National Communication to the UNFCCC in January 2012, identifying vulnerability and adaptation in fisheries as one of its main priorities. Fisheries contribute 7.8% of the Angolan GDP and the NAPA and National Communication identify fisheries as being among the most vulnerable sectors. Important threats particularly relevant to marine fisheries that were identified include sea level rise, changes in the Benguela Current, as well as changes in wind frequency and intensity. It is recognized in the NAPA that changes to the Benguela Current may have implications for inshore fisheries, dependent communities and for the fishing industry as a whole. The NAPA further notes that there is currently insufficient knowledge, scientific research, or data to be able to assess the specific amplitude of likely impacts on water, soil, forests or coastal zones. Furthermore, there is insufficient data and technical capacity available in climate monitoring to be able to produce legitimate and timely forecasts, early warnings or long-term projections. Lastly, to address these issues, the NAPA lists a number of priority actions, including the need to study the vulnerability of fisheries, create early warning systems (e.g. for flooding and storms), and soil erosion control. The NAPA includes Project 4: "Study the vulnerability of the fisheries sector to climate change and current modifications" as the fourth highest ranked priority action in a list of 15 priorities identified in its preparation.
- **Namibia** adopted a national climate change policy in October 2011 (*ref: National policy on climate change for Namibia, Government of the Republic of Namibia*), which notes the potentially catastrophic impacts on livelihoods caused by the reliance of the majority of the population on climate-sensitive sectors such as agriculture, livestock management and fishing. To address climate change uncertainty, Namibia sets out to: promote integrated fisheries and marine resources management; encourage any other approach that leads to sustainable management and utilization of fisheries and marine resources; and strengthen and encourage integrated coastal zone management plans for the protection of marine life. Namibia's Second National Communication to the UNFCCC from July 2011, recognizes the significant contribution of its commercial fishing and fish processing sectors to the economy in terms of employment, export earnings, and contribution to GDP and also notes that its participation in the BCC has contributed towards attaining sustainable fisheries, including rebuilding fish stocks. Lastly, Namibia's Third National Development Plan recognizes the importance of the impacts of environmental/climatic change on marine capture fisheries production. In addressing such impacts, one of the goals of the Plan is to strengthen joint management of shared fish stocks between Namibia, South Africa and Angola through the BCC.
- **South Africa** notes in its Second National Communication to UNFCCC of November 2011 that the coastal and marine environment around southern Africa is one of the most varied in the world. With regard to the South African part of the Benguela, some of the anticipated effects of climate change include increased seasonal storm activity and anticipated sea level rise. It is further recognized that South Africa has experienced significant declines in catches and the loss of many species both as a result of over-fishing, and due to the natural migration of fish populations related to environmental changes. Subsistence fishing and other marine resource harvesting practices, although small and localized compared to some other national sectors, constitute important coastal subsistence livelihoods. In responding to climate change impacts, the Communication suggests that sound integrated ecosystem management practices will be key as they contribute to increasing resilience. In a presentation by the South African Department of Environmental Affairs during the UNFCCC COP 17 Ocean's Day, South Africa proposed some further actions to address climate change from an African coastal and ocean perspective, recognizing that both local and regional actions are required. Noting that decision-making on climate issues needs to be underpinned by regular and timely reports of observations, the proposed actions included assessing coastal vulnerability around South Africa, implementing early warning

systems for ocean and coastal hazards, enhancing observing and reporting capabilities around the coasts of Africa, as well as instituting effective governance and legislation.

B. PROJECT OVERVIEW:

B.1. DESCRIBE THE BASELINE PROJECT AND THE PROBLEM THAT IT SEEKS TO ADDRESS:

The Problem

The Benguela Current Large Marine Ecosystem (BCLME) spans some 30 degrees of latitude, extending from Angola's Cabinda Provide in the north, to just east of Port Elizabeth in South Africa. It is one of the world's richest marine ecosystems and supports an abundance of life; sustaining both artisanal and large-scale fishery activities which contribute to local food security and employment for hundreds of thousands of people in areas of limited alternatives, and serve as important drivers of economic development. Angola's fisheries are very important for domestic food supply (90% of fish produced is sold in the domestic market) and, especially small-scale, artisanal fisheries are the main or sole means of livelihoods and food provision for a large part of the population in coastal areas. Namibia does not have a well-developed artisanal fishery because of the harsh coastal environment and its fisheries are primarily commercial but still provide essential employment, livelihoods and cheap sources of protein for Namibia and neighbouring countries. Fisheries are the third largest contributor to the country's GDP. In South Africa, while making a small percentage contribution to GDP, fisheries also provide essential benefits to coastal populations and economies, often in areas with very limited alternative sources of livelihood. South Africa has well developed high value large-scale fisheries, small-scale, artisanal fisheries and economically important recreational fisheries.

Despite, or because of, their social and economic importance, the fisheries sectors in the three countries are facing a number of serious challenges to ensuring sustainable use of the productive but vulnerable marine resources that support them. These include over-exploitation of resources by fisheries, impacts on the aquatic ecosystems from land and aquatic resource use within other sectors including coastal zone development and offshore mining and oil and gas extraction, and a highly variable and changing climate. All three countries have demonstrated the ability to manage their fisheries but the available capacity is heavily stretched and needs urgent strengthening to cope with the growing pressures on resources and ecosystems, the additional demands of implementation of an ecosystem approach, and the challenges of climate change and variability. In addition, joint management of important transboundary and shared fish in the region has yet to be achieved.

The region has a good history of scientific research which, in particular, has provided valuable information on the biological status of commercially important species and the ecosystems supporting these fisheries. Considerably less attention has been given to understanding the social and economic characteristics and contributions of the fisheries, particularly the small-scale, artisanal fisheries and the challenges that they face. The current governance frameworks have tended to be top-down and science-driven which has been a contributory factor in over-fishing and generated some of the challenges faced by the management agencies in achieving sustainable fisheries. There is an urgent need, recognised in the countries, to strengthen participatory and adaptive co-management within the framework of ecosystem approaches. This will be an essential component in building human and ecological resilience to the climate change and variability that is already impacting the region.

In the BCLME, biophysical variability and trends have already led to changes in surface water temperatures, an increased frequency of Benguela Niños and other such intrusions of warm, nutrient-poor water from southern Angola, an increase in winds in the summer months, a general decline in oxygen concentration, and sea level rise. Changes in the aquatic food web have also been identified, including: distributional shifts of important fish species away from the normal fishing grounds, for example in South Africa and Angola; likely decreases in abundance and production of some species; as well as a shift to a less productive regime in the northern Benguela, believed now to be dominated by gobies, jelly fish and horse mackerel.

The high degree of natural and typically unpredictable variability and the possibility of unprecedented large-scale environmental changes which could affect the system profoundly, compound existing pressures on fisheries and those dependent on them. The likely impacts are still uncertain and little is known at present about the vulnerabilities of the fishery sectors and dependent communities to climate change impacts directly on aquatic systems as well as impacts on other systems such as human health and land and water resources. However, there is growing evidence of changes taking place. For example, the distribution of *Argyrosomus coronus*, a socially and economically important fish species in northern Namibia and southern Angola, has

been found to be shifting to the south, almost certainly as a result of increasing temperatures. If sustained, this will lead to important negative impacts on coastal fishing communities in southern Angola while Namibian coastal and recreational fisheries could begin to experience better catches. In both cases this will require adaptive changes in management and use. In South Africa, an eastward shift in the distribution of important inshore fishery resources including West Coast rock lobster, sardine and anchovy on the continental shelf has been observed in the past decade, generating significant economic and planning challenges for the affected fisheries. In Namibia, there has been a trend of warmer sea surface temperatures in the Northern Benguela ecosystem which could be a contributory factor in the declines observed in some fish stocks in recent years.

These indicators of change taking place demonstrate the urgency of assessing the vulnerability of the different fisheries and fishing communities to ongoing climate change and variability and taking steps to increase the resilience of those considered most vulnerable. In a region already facing serious challenges in terms of poverty and food insecurity, with likely gender-specific differences, the countries must be well-prepared to minimize the risks to fisheries and fish production and to take advantage of any positive impacts that will arise from climate change and variability.

The Baseline Programme

Notwithstanding the threats and challenges to sustainable development of the marine fishery resources of the Benguela Current Large Marine Ecosystem, the region has a reasonable to good record of effective management of fisheries and other human uses of marine goods and services. However, the three countries that share the ecosystem face increasing demands and pressure on already stretched capacity coupled with an ongoing loss of skilled personnel, especially in Namibia and South Africa, which give rise to considerable concern.

The Benguela Current Commission provides a vehicle for the three member countries to cooperate in implementation of an ecosystem approach to fisheries and cooperative management of biodiversity and ecosystem health. Signatories to the Interim Agreement were the Ministers of Fisheries, Urbanisation and the Environment and Petroleum of Angola, the Ministers of Fisheries and Marine Resources, Environment and Tourism, and Mines and Energy of Namibia, and the Minister of Environmental Affairs and Tourism in South Africa. The BCC is therefore in an excellent position to facilitate and coordinate work on climate change and fisheries, ensuring good communication and cooperation with the national authorities responsible for other users of the marine ecosystem. The overall goal of the BCC Science Plan is to "ensure optimal and sustainable utilization of the resources of the Benguela Current Large Marine Ecosystem while restoring, maintaining and conserving the ecological integrity of the system" and it is recognized in the Plan that climate change is an important potential threat to that goal. The Science Plan focuses on the implementation of an ecosystem approach to fisheries (EAF), which is directly linked to adaptation to climate change. Any efforts to implement one have to incorporate the other, a principle being followed by the BCC. Through its SAP Implementation Project, the BCC will contribute approximately US$800 000 in in-kind and grant co-financing to CCA activities.

There are also several fisheries-specific international projects taking place in the region that are directly relevant to this project proposal. They include the following:

- The FAO/Norway EAF-Nansen Project is working with the BCC in the development of a tracking tool to monitor the implementation of an ecosystem approach to fisheries management; enhancing the integration of the human dimension of EAF into fisheries management and including the identification of appropriate institutional arrangements. Climate change pervades all of these activities. A new, 3-year transition phase of the Project started on 1 January 2012 and includes a new activity specifically on climate change. This project will provide an estimated US$100 000 in co-financing towards understanding the bio-physical impacts of climate variability and change in the Benguela system and linking these to an ecosystem approach to fisheries. The GEF-funded project will build on and add value to these results, using them as background information and input into the integrated vulnerability assessments of fisheries and fishery-dependent communities that will be undertaken, reinforcing the close links between EAF and adaptation to climate change.
- The Norad-funded NansClim project (1st phase 2009-2012) is focusing directly on climate change and variability in the region and its expected outcomes include suggestions for marine ecosystem indicators, future scenarios of climate effects on marine resources, and regional capacity building on ecosystem effects of climate change and variability. This project will provide an estimated

US$100 000 in co-financing towards the identification and description of possible trends in ocean climate and corresponding changes in marine biodiversity and fisheries in the Benguela current system. The NansClim project will provide important baseline information for the vulnerability assessments and will also inform the work under Component 2 on strengthening institutions and frameworks for effective monitoring and early warning systems.

- ECOFISH is a six-year (2011-2016) project supported by the European Commission and is being coordinated by the BCC with participation by scientists and fisheries managers in the three countries and specialists from the Technical University of Denmark. Its overall aim is to develop a new framework for the ecosystem approach to fisheries (EAF) in the Benguela Current Large Marine Ecosystem (BCLME). While not explicitly focusing on climate change, it will have to give serious attention to climate change and variability in order to fulfill this aim. This project will provide an estimated US$100 000 co-financing as a contribution to improving knowledge of basic ecosystem processes, improving the assessment of fish stocks, and involving stakeholders in the management of Benguela fisheries, complementing the work taking place in the FAO/Norway EAF-Nansen Project relevant to this PIF.

In addition, the 5-year (2009-2014) global Japanese-funded FAO project, entitled *Fisheries Management and Marine Conservation within a Changing Ecosystem Context*, will provide approximately US$75 000 in co-financing to assist in a global understanding of vulnerability and adaptation planning within fisheries and aquaculture and in sharing of lessons-learnt during project implementation.

The Government of Angola is implementing a number of actions to support development of sustainable artisanal marine fisheries and aquaculture in inland water bodies. With financing from the African Development Bank, the Government has created 10 Artisanal Fisheries Support Centres along the marine coast and shall construct 4 and rehabilitate 2 artisanal fish landing sites/centres to reduce post harvest losses and improve access to markets. In total 16 landing sites will receive assistance with respect to fishery resource and fishery infrastructure management. In addition, the Monitoring, Control and Surveillance (MCS) system and the fisheries statistical system for improving the sustainable management of Angolan fisheries are being reinforced. At the moment, there is limited understanding and inclusion of climate change vulnerability reduction in these actions. This is one of the gaps that will be addressed by the proposed project. Public investment in the fisheries sector during the 2007-2008 period was approximately $380 million. Through its implementation of the National Strategy on Food and Nutritional Security (ENSAR), Angola will contribute US$5 million in baseline support to the sustainable management of marine capture fisheries.

The government of Namibia endeavors to responsibly manage living aquatic resources to ensure a conducive environment for the fishing and aquaculture sector to prosper. In the financial year 2009/2010, the total budget of the Ministry of Fisheries and Marine Resources was over ND 150 million (approximately US$18 million) of which nearly ND 31 million was allocated to resource management, ND 72 million to operations and surveillance and the remainder to a range of other support services in fisheries and aquaculture governance and development. The total budget included an income, in 2009, of some ND 96 million from fees and levies charged to the commercial fisheries sector, demonstrating the good progress being made by Namibia towards cost-recovery in commercial fisheries. In June 2012, the Ministry of Fisheries and Marine Resources organized and hosted a National Fisheries Conference, Olupale Leeshi, that brought together all stakeholders in the fisheries and aquaculture sector to develop a blueprint for sustainable development which provides a good indication of its commitment to responsible fisheries for the benefit of the country as a whole. The government supports research on the state of commercially important stocks which is used to advise decision-makers on total allowable catch limits, and its oceanographic monitoring program provides regular data on marine oxygen, temperature and other important parameters needed to understand the Benguela ecosystem. The government implements a value addition, employment and marketing policy through the recent development of 25 fish processing facilities, market expansion efforts and a fully operational MCS system. The government's strategy (the Ministry of Fisheries and Marine Resources Strategic Plan 2009-2014) has identified the sector's climate change vulnerability as a strategic issue and has commenced actions to decrease the sector's vulnerability to change, such as through the promotion of relevant dialogue among stakeholders, contingency planning, conducive environments to withstand external factors affecting operations and fisheries management plans based on EAF principles. Namibia continues to monitor environmental variability and to make use of marine protected areas and other management tools to

support the resilience of harvest fish species within the framework of an ecosystem approach. Namibia is also working toward a national approach to climate change adaptation in Namibia, which would include agricultural adaptation, aquaculture, rain-water harvesting, water demand management and protection of watershed areas. These activities are estimated to contribute co-financing of US$3 million. The proposed project will benefit from the fisheries, oceanographic and biological research, support its use in understanding and reducing vulnerability of the sector and will support inclusion of fisheries-specific needs and best-practices in national climate change efforts.

The mid-term strategic plan of the government of South Africa strives to promote the management, monitoring and sustainable use of marine living resources and the development of South Africa's fisheries sector. The government, through the Department of Agriculture, Forestry and Fisheries (DAFF), has a good record of responsible management of its fishery sector, with a particular emphasis on sustainable use of resources and is committed to the implementation of an ecosystem approach to fisheries. In the financial year 2010/2011, the DAFF spent over ZAR 300 million (approximately US$35 million) in fulfilling its mandate on fisheries. These funds were targeted at the following three Departmental strategic goals: SG 2: Sustained management of natural resources; SG 4: A transformed and united sector; and SG 5: Increased contribution of the sector to economic growth and development. Over the next five years, South African fisheries management will continue to conduct fishery-specific research to inform the setting of total allowable catches and effort in 22 fishing sectors; will implement a stock recovery strategy for 4 major species; will finalize and implement the small-scale subsistence fisheries policy; broaden the scope of the aquaculture sector; develop and implement a stakeholder engagement strategy; develop and finalize a fisheries charter; develop and implement the Integrated Fisheries Security Strategy to ensure better compliance, monitoring and enforcement efforts; and promote job creation and sustainable economic livelihoods. Variability in oceanographic conditions and ocean productivity coupled with noted shifts in the distribution of certain fish populations has been observed in the southern Benguela system. The observed changes in the physical environment (long-term change in sea surface temperature) have yet to be conclusively linked to the changes in fish populations and their impact on the management of these fisheries has yet to be assessed or quantified, but some studies into this are underway. Climate change is explicitly recognized as a challenge potentially limiting fisheries' ability to contribute to key government imperatives of sustainable use of living resources and ensuring food security. The 2012-2015 DAFF allocations in support of fisheries and aquaculture management are estimated at approximately $140 million, with a corresponding co-financing estimated at US$5 million in baseline related support. The proposed project will support the government's planning and implementation efforts through a better understanding of the overall risks and vulnerability of the fisheries sector to climate change. The project will also inform management on ways to plan for measures to adapt and mitigate climate-related changes that affect the abundance and distribution of fish populations and ecosystems and any resulting social, economic and management consequences for the fisheries sector and those dependent on it.

The baseline provides a good platform for catalytic intervention to lead to major on-the-ground progress. The general threats are largely understood by the three beneficiary countries and the project responds to priorities in the NAPA from Angola, the Namibian National Policy on Climate Change, and priorities described in the National Communications to UNFCC of those two countries and South Africa. What is missing, however, is a targeted and comprehensive effort to assess the vulnerability of the coastal population to climate change, focusing on fisheries-dependent communities, and to initiate actions to reduce the vulnerability of those most at risk, including through the provision of the knowledge and tools essential for this purpose. To effectively address climate change and variability risks in the region, and as agreed by participants from the three countries at a November 2011 regional workshop organized by the BCC on "Climate change implications for fisheries of the Benguela current region: making the best of change",[5] there is urgent need for:

1) Better understanding of the vulnerability of the human and aquatic systems to climate change and variability within the Benguela Current fisheries systems;
2) Coordinated and collaborative actions to decrease vulnerability of the human and aquatic systems and broader progress toward sustainable development in the Benguela Current fisheries systems;

[5] Climate change implications for fisheries of the Benguela Current region: making the best of change. FAO/Benguela Current Commission Workshop, 1–3 November 2011, Windhoek, Namibia. FAO Fisheries and Aquaculture Proceedings. No. 27, Rome, FAO, 2012.

3) Integrated and participatory processes to support the fisheries and aquaculture sectors to reach consensus on vulnerabilities and appropriate adaptation actions within national and regional climate change and development priorities and strategies;
4) Pilot projects to explore options and demonstrate best practices and tools that can be used for implementing practical actions for adaptation to climate-induced change;
5) Capacity building to support the participation of the Benguela Current fisheries and aquaculture sectors within national, regional and global climate change discussions and actions; and
6) Building on the existing political commitment and integrated institutional arrangements of the BCC, to facilitate and coordinate a regional programme on climate change adaptation in the BCLME region.

B. 2. INCREMENTAL / ADDITIONAL COST REASONING: DESCRIBE THE INCREMENTAL (GEF TRUST FUND) OR ADDITIONAL (LDCF/SCCF) ACTIVITIES REQUESTED FOR GEF/LDCF/SCCF FINANCING AND THE ASSOCIATED GLOBAL ENVIRONMENTAL BENEFITS (GEF TRUST FUND) OR ASSOCIATED ADAPTATION BENEFITS (LDCF/SCCF) TO BE DELIVERED BY THE PROJECT:

The countries of the Benguela Current region have demonstrated that they are aware of the risks brought about by climate change and variability and are beginning to take steps to address those threats. They are being supported in these efforts by the Benguela Current Commission and by a number of directly relevant projects. However, the preceding sections of this document have revealed that the progress that is taking place has been slow, with much still at the level of intention rather than action, and that it is very fragmented in terms of the institutions involved, the sectors and regions being addressed, and activities that are planned or taking place. Importantly, although the region has benefitted from extensive research on the bio-physical and biological conditions of the Benguela Current system, relatively little focus has been placed on the implications of climate variability and change on food and livelihood security of the communities dependent on this system and how decision-making, fisheries management and investment plans need to incorporate the additional uncertainty and change to support the system's resilience and contributions to well-being. The net result is that the countries are not responding adequately to changes that are already taking place and are poorly prepared for the ongoing change still to come.

This project is designed to build on this fertile but still under-developed ground and will provide essential additional benefits to enable the BCC and its member countries to pull together and build on what is already known and activities currently underway. Oceanographic and biological information will be combined with community and industry knowledge to understand factors relating to climate exposure, sensitivity and adaptive capacity of the socio-ecological systems. Identifying the underlying factors of climate change vulnerability within the fisheries sector will lead directly into focused adaptation planning and implementation. The project will help to formalize the consideration of climate change implications for fisheries in decision-making, planning and development both within the sector and in inter- and multi-sectoral plans, ensuring the issues are not overlooked and lost in the midst of other competing concerns. Transboundary implications of climate variability and change on the viability of the sector and the current regional management framework will be identified and addressed during the project. The project will support climate change capacity building at the community, sector and institutional levels and will ensure that lessons learnt will be captured and communicated for further adaptation support within the Benguela Current region and elsewhere.

In summary, the **adaptation benefits** of the project include 1) increased understanding of vulnerabilities to climate variability and change of the Benguela current socio-ecological system by and national authorities, as well as the major stakeholder groups presented below; 2) directed fisheries adaptation planning at the community, sector, institution and regional levels; 3) vulnerability reduced through the implementation of identified and prioritized adaptation actions specific to the sector, such as improved safety at sea, flexible marine spatial, temporal and rights-based planning and as well climate proofing activities along the post-harvest supply chains; 4) strengthened adaptive capacity of local, national and regional institutions through targeted training on climate change risks and best adaptation practices in fisheries and the collection and integration of targeted climate change information for adaptive fisheries management and development planning; 5) climate change adaptation in fisheries and fishery-dependent communities supported and mainstreamed into broader sectoral, food-security and climate change frameworks in the three countries; and 6) adaptation lessons learning and dissemination for further investments and up-scaling of adaptation activities within the Benguela Current and beyond.

Component 1. "Integrating fisheries climate change considerations into fisheries policies and planning as well as into broader inter-sectoral development and climate change policies and programmes" will add to the existing initiatives in the region by ensuring that all relevant authorities and stakeholders are well informed and aware of the vulnerabilities of the different fisheries and fishing communities across the region. Nearly US$ 9 million co-financing is available on this component through the various activities described in Baseline Programme in Section B.1. These baseline activities are making progress in creating awareness of the impacts of climate change and the need to address those impacts in fisheries and multi-sectoral policy and planning, but the baseline projects are doing so in a fragmented and frequently poorly coordinated manner. In the cases of the BCC and national governments, initiatives and actions have yet to move from discussion and review into implementation. The added value of the project will be to assist in bringing the results and the relevant activities of these dispersed efforts together and ensuring that climate change moves from being a largely scientific exercise of which policy makers are generally aware, to being a serious and explicit issue in revised policies and programmes. Working with all stakeholders, comprehensive vulnerability assessments of the socio-ecological systems will be undertaken across the participating countries and adaptation actions will be identified for the most vulnerable fishery systems. This knowledge and awareness, which will include addressing gender-specific features, will be channelled into the planning processes at regional and national levels to ensure that it is taken into account in national and regional policy and management, both within the fisheries sectors and in broader local, national and regional actions in connection with poverty alleviation, food security and development. Relevant training and hands-on experience of national and BCC authorities in undertaking and using vulnerability assessments for fisheries management in the face of climate variability and change - combined with explicit incorporation of climate risk information and decision-making into the BCC SAP and national management processes – will form an integral part of this component. High priority risks will be identified and, using participatory approaches and best available knowledge, adaptive strategies for increasing resilience to those risks will be developed. Strategies will encompass as required: resource management, social and economic responses, and governance issues. Alternative and diversified livelihoods will be considered where considered advantageous. In addition to other stakeholders, involvement of national fisheries authorities in broader national climate change deliberations will be strengthened through better understanding of the sector-specific vulnerabilities and specific support to inter-agency/inter-sectoral activities and processes. These outputs and outcomes will represent a major step forward compared to the fragmented and non-specific information that is currently available and will give impetus to the limited progress made to date in increasing resilience and reducing vulnerability within the fisheries sector.

Component 2. "Piloting of improved climate-resilient fisheries practices" will demonstrate that real progress in strengthening resilience is possible and feasible in the three countries and highlight the benefits that result. It will work with and build on the approximately US$ 3.5 million co-financing represented by the relevant Baseline Programme. This Baseline Programme includes, for example, valuable initiatives in implementation of the ecosystem approach to fisheries through several projects, initiatives to support artisanal fisheries in Angola and a range of far-reaching efforts to improve the sustainable management and governance of fisheries in all three countries, However, it is apparent from Section B.1. that at present there are no efforts to embrace building of climate resilience in the existing Baselines, despite the recognition that it is required. This project will enable and facilitate that additional step through piloting of explicit actions for climate resilience, thereby demonstrating the advantages of doing so across the three countries. Based on the vulnerability assessments and initial adaptation options identification under Component 1, this component will further support adaptive capacities at three levels: actions to be taken at the community level, at the fishery level and at national and regional institutional level. Community-based adaptation action plans will be developed and implemented to the extent possible in at least six high risk communities or fisheries. At least 3 fisheries management plans will be developed or strengthened to incorporate climate change variability and change and national and regional monitoring and information systems will be evaluated for climate-related gaps. Actions to address gaps identified will include training in relevant skills, development of terms of reference for additional human capacity requirements, creation of focal points for cross-institution collaboration, and identification of any equipment or infrastructure needed as part of national and regional investment programmes. Collectively, these activities will contribute to integrated institution-building at local, national and regional levels. Working with communities at local level and with national and regional fisheries, with full involvement of stakeholders, it will measurably reduce vulnerability to climate change and variability in selected pilot fisheries and empower the stakeholders to maintain and build on the

improvements that have been made in the future. In doing so, it will transfer knowledge and expertise from the currently limited number of specialists in the region to the people and institutions who are most at threat and need to take action. The outcomes that will result from the project will include greater resilience amongst the more vulnerable local fisheries and fishing communities, and implementation of national and regional management plans that are aware of and respond to significant climate change and variability in a way that minimises negative impacts and makes optimal use of any positive impacts. In addition, the project will result in regional and national early warning systems, supported by monitoring programmes, that will inform and enable adaptive responses to changes taking place. The net result will be healthier and more resilient marine ecosystems being harvested by fisheries and communities in selected pilots who will also be aware of the threats to their livelihoods from climate change and equipped to mitigate and adapt to them, thereby increasing their longer-term security and general well-being.

Component 3. "Capacity building and promotion of improved climate-resilient fisheries practices" will complement the first two by reinforcing and widely disseminating the awareness and knowledge of vulnerability and approaches to adaptation to climate change, and ensuring a body of stakeholders, across all interest-groups and functional roles, able to maintain and build-on the knowledge gained and the practical progress made through the pilot studies. Capacity limitations of national and regional management authorities and stakeholders are an important constraint to achievement of effective governance and management of fisheries in the region, even without the additional challenges of climate change. Capacity losses in the management agencies of South Africa and Namibia were highlighted as serious concerns during the first phase of the BCLME Project. The BCC has a Training and Capacity Building Programme to help to address this problem but that is limited by funds and is not currently addressing climate resilience. In total, just under US$ 1.3 million is available in co-financing for this Component. This is considerably less than the co-financing for Components 1 and 2, and reflects the relatively low level of attention being given to focused and sustained capacity-building in the sector in the region, other than through the normal secondary and tertiary educational programmes of the countries. Within this context, this Component will add considerable value to the Baseline Programme through production of information products aimed at capacity building and through targeted training sessions that will use modern, best-practice methods and approaches. These activities will lead to broader and deeper capacity on climate change vulnerability and adaptation in the region and contribute to ensuring that resilience is strengthened in fisheries and fisheries-dependent communities wherever climate change is, or could be, a significant threat to ecosystems and to the people dependent on them. This component will also help to reinforce the existing national and regional efforts to improve fisheries management and rebuild over-exploited stocks by ensuring that climate change and variability, currently generally overlooked in fisheries in the region, is included as an important factor driving change and adaptive action is taken as required.

Component 4. "Project monitoring and evaluation" (M&E)" will provide the project with the specific M&E system that will be needed in order to ensure effective implementation. This will result in rigorous monitoring of project indicators, including AMAT indicators in order to ensure that the project achieves its objective and will include midterm and final evaluations which will identify the main findings and lessons learned for application in the future. The project will also ensure that the results and best-practices identified during implementation will be widely available and readily accessible. In addition to publication and dissemination of the main findings, a project website will be developed and maintained to contribute to maximizing overall impact and incremental benefits.

B.3. DESCRIBE THE SOCIOECONOMIC BENEFITS TO BE DELIVERED BY THE PROJECT AT THE NATIONAL AND LOCAL LEVELS, INCLUDING CONSIDERATION OF GENDER DIMENSIONS, AND HOW THESE WILL SUPPORT THE ACHIEVEMENT OF GLOBAL ENVIRONMENT BENEFITS (GEF TRUST FUND) OR ADAPTATION BENEFITS (LDCF/SCCF). AS A BACKGROUND INFORMATION, READ "MAINSTREAMING GENDER AT THE GEF.":

As explained in Section B1, marine fisheries make important social and economic contributions in all three countries. There are an estimated 102 fishing communities along Angolan's 1 650 kilometre coastline, made up of artisanal fishers and others involved with associated activities on land. The total number of people involved in artisanal fishing activities is estimated at 130 000 to 140 000 but this still does not include individuals involved in buying, processing, distribution and marketing of fish. In addition, fisheries contribute approximately 7.8% of the Angolan GDP. While fishing at sea is largely done by men, women are

involved in some shore-based fishing and make up the majority of the fish processors, sellers and traders, including cross-border trading into neighbouring countries.

Namibia has a very different structure in its fisheries. Approximately 6.5% of the country's population, or 100 000 people, live on the coast and most of these people live in the main coastal centres of Swakopmund, Walvis Bay, Luderitz, Oranjemund and in Henties Bay. Many of them are directly or indirectly dependent on living marine resources for their livelihoods. About 14 000 people are thought to be employed in the formal marine fishing industry. Women are an important part of the workforce in the processing factories. The sector has contributed between 4 and 5% to the country's GDP in recent years and had an estimated value of US$ 372.2 million in 2005.

The fishery sector in South Africa covers the full range of scales from subsistence to high-value commercial fisheries. A total of approximately 26 000 people are employed in the sector, most in the commercial fisheries. There are approximately 34 communities engaged in subsistence or informal fishing along the Benguela part of South Africa's coastline, comprising 2 438 households and 2 373 informal fishers. As in the other two countries, women are mainly engaged in post-harvest activities. The contribution of fisheries to the national GDP was estimated to be US$ 322.5 million in 2008.

These numbers give an indication of the importance of fisheries along the Benguela coastline and the social and economic disruption that could result if the sector is not well-prepared for the likely impacts of climate change. By reducing vulnerability through developing and implementing adaptation strategies in the social-ecological fisheries systems of the BCLME, the socio-economic benefits will be made more secure. At both national and local levels, increased awareness, strengthened adaptive capacity, early warning systems and improved intra- and inter-agency collaboration and communication (e.g. in relation to distribution information/warnings) will contribute towards early active responses aimed at reducing the risks to peoples' lives and livelihoods. This will need to take into account the very diverse socio-economic situations of the different interest groups across the three BCLME countries, from the artisanal and subsistence fishing communities to the employees of high-value commercial fisheries. In addition the benefits obtained from fisheries and the risks imposed by climate change differ in important respects according to gender. The project will include in-depth analysis of the situation of both genders, providing a solid basis for developing actions to address the potentially different needs of men and women under the project.

B.4 INDICATE RISKS, INCLUDING CLIMATE CHANGE RISKS THAT MIGHT PREVENT THE PROJECT OBJECTIVES FROM BEING ACHIEVED, AND IF POSSIBLE, PROPOSE MEASURES THAT ADDRESS THESE RISKS TO BE FURTHER DEVELOPED DURING THE PROJECT DESIGN:

Risk	Level of risk	Mitigation strategy
Inability to develop and implement a sufficiently holistic vulnerability assessment methodology, resulting in a failure to detect more obscure vulnerabilities in the fisheries systems.	Low	Considering the diverse nature of the fisheries systems in the three countries, much effort will be put into broad and comprehensive considerations of impacts and vulnerabilities. The participative processes employed should ensure that all aspects are covered.
Insufficient time dedicated by collaborating and partner organizations and agencies to successfully implement the project components.	Low	During the project preparation phase, time availability and commitments will be discussed among the participating organizations and agencies to ensure that none is carrying a heavier burden than it can sustain.
Inadequate participation by all stakeholder groups to identify and prioritize adaptation needs in a sufficiently objective manner.	Medium	Careful attention will be given to ensuring the involvement of all relevant stakeholders at an early stage and throughout the project implementation process. This will facilitate consideration of all points of view and balanced, objective prioritization.
Some stakeholders (e.g. small-scale fishers) lack sufficient negotiation strength vis-à-vis others.	Medium	The project will clearly indicate the contributions of the sector to food and livelihoods security and economic development and build the capacity of sector partners to advocate in broader planning discussions. Meetings, workshops and other consultative events will be professionally facilitated to ensure full and fair participation and influence.
Climate-induced events, such as shifts in shared stocks, occur faster than the project is able to prepare and plan for	Medium	The project is aiming to build the capacity of fishers, communities, and regional management to better deal with the current climate variability including extremes and future climate change through adaptation and resilience-building practices. The vulnerability assessment will identify any particularly urgent cases which can then be targeted in the pilot studies and other activities.

B.5 IDENTIFY KEY STAKEHOLDERS INVOLVED IN THE PROJECT INCLUDING THE PRIVATE SECTOR, NGOS, CIVIL SOCIETY ORGANIZATIONS, LOCAL AND INDIGENOUS COMMUNITIES, AND THEIR RESPECTIVE ROLES, AS APPLICABLE:

Key stakeholders	Roles
Fishers and fish processing workers (from small-scale as well as industrial fisheries) represented by CSOs, NGOs, trade unions etc from each of the countries. The specific partners will be identified during the project preparation phase.	Participation and support in Components 1-3.
Fishing companies/cooperatives including processing sectors represented by the relevant industry associations active in the three countries. The specific partners will be identified during the project preparation phase.	Participation and support in Components 1-3.
National government representatives, including resource managers and scientists, from fishery, environment and climate change Ministries or Departments, in particular, the Department of Fisheries of Angola, the Department of Fisheries and Marine Resources in Namibia, and the Departments of Agriculture, Forestry and Fisheries and of Environmental Affairs in South Africa.	Facilitation and participation in Components 1-3. Participation and support in Component 4.
Representatives from regional and local government from fishery and other relevant Departments in each of the three	Facilitation of Components 1-3. Participation and support in Component 4.

countries. The details will depend , in part, on the sites selected for pilot studies which will be done during project preparation.	
National scientists and experts in economics, natural and social science, climate experts, development experts, etc. from universities and other research bodies in the region	Participation and support in Components 1-3.
Inter-governmental organizations: BCC, NEPAD Agency, SADC, FAO, UNDP	BCC will coordinate the implementation of the project through its role as the executing agency, with support from the GEF implementing agency FAO. Other organizations will participate as partners in Components 1-3.
NGOs, CSOs., *S*pecific partners will be identified during the project preparation phase.	In addition to NGOs and CSOs already referred to in this list, environmental NGOs and other relevant NGOs and CSOs will be invited to participate in and support Components 1-3.
Other extractive and service sectors e.g. mining industry, oil and gas industry, tourism.	Will be invited to participate in and support Components 1-3. In addition, there will be a need for specific multi-sectoral consultations and discussions in Components 1 and 2 and particular efforts will be made to involve these sectors in those events.

B.6. OUTLINE THE COORDINATION WITH OTHER RELATED INITIATIVES:

The proposed project would be coordinated by BCC (as executing agency), with the assistance of FAO as GEF implementing agency. Collectively, these organizations have close existing and historical links with the relevant government agencies, NGOs, CSOs, fishing industry and other stakeholders in the BCLME region. In addition, one or both organizations are already involved in the main related initiatives underway and planned in the region. These linkages will greatly facilitate coordination. Using and extending these networks where necessary during the Project Preparation phase, the project will reach out to and liaise with all key related initiatives to ensure partnerships and good coordination.

Key initiatives that the proposed project will need to work with include:

- The NEPAD Agency – FAO joint fisheries programme (NFFP), supported by funding from SIDA, includes three components of which one is "Component C: Vulnerability of fishers, fish farmers and their communities is reduced through development and implementation of community based Disaster Risk Management (DRM) and CC adaption plans, and strategies addressing climate change at the national and regional levels". Based on inclusive stakeholder consultations, priority needs across the African continent identified under Component C include strengthening policy integration at regional and national levels and improved collaboration and coordination of DRM and CCA in fisheries and aquaculture, and identification and utilization of best practices on integration of DRM and CCA. Although providing an overall programme of priority areas, current funding is limited and, therefore, limited national level work will be funded directly by the NFFP and the programme will focus on awareness raising, coordination of activities across the continent and sharing of lessons learned. The detailed implementation plan is still under development but the proposed project will benefit NFFP by building on the largely educative role of NFFP, including practical applications. In turn, this project will complement and, through coordination, utilize results and activities funded under the NFFP. Equity and gender will be important considerations in the project activities.
- WWF South Africa: building on its work in relation to Ecological Risk Assessments with regard to EAF implementation in the major fisheries of BCLME;
- National statutory institutes in Angola, Namibia and South Africa: building on their collaboration to date; and
- Relevant Departments at local universities and parastatal institutes, such as the Council for Scientific and Industrial Research (CSIR) in South Africa, University of Namibia, Agostinho Neto University, Angola.

Furthermore, Namibia is currently implementing the Africa Adaptation Programme-Namibia Project (AAP-NAM Project, funded by the Government of Japan through UNDP), which has established a national adaptation framework and coordination mechanism within the Ministry of Environment and Tourism. The intended outcomes of this project fit well with the established national adaptation framework and policy outcomes in particular can be fed into the established set-up to achieve optimal policy impacts.

During the project preparation phase, a formal coordination mechanism will be established between BCC, FAO and other supporting and partner organizations, departments and agencies. Respective roles will be clearly defined. Preliminary discussions between these organizations are already underway.

C. DESCRIBE YOUR AGENCY'S COMPARATIVE ADVANTAGE TO IMPLEMENT THIS PROJECT:

FAO, with 191 member countries, is the United Nations agency with competency in all areas of fisheries and aquaculture and enjoys a worldwide reputation for the quality and effectiveness with which it is fulfilling this mandate. FAO has a long and successful track record of building capacity and promoting regional collaboration in fisheries through its normative programmes, country offices, FAO regional fisheries bodies, and through cooperation with other non-FAO regional fisheries bodies, other IGOs, UN Agencies and others. It has also led global work on implementing the FAO Code of Conduct for Responsible Fisheries, an ecosystem approach to fisheries and aquaculture and has produced codes of practices and standards related to product safety and responsible trade, including guidelines for the ecolabelling of fish and fishery products. The Organization is currently engaged in developing Voluntary Guidelines on Securing Sustainable Small-Scale Fisheries through a global, participatory process. FAO has worked closely with Angola, Namibia and South Africa on fisheries for decades and with the BCC since its inception. FAO and the BCLME Project, with GEF funding, collaborated on the very successful project "Ecosystem Approaches for Fisheries Management in the Benguela Current Large Marine Ecosystem" (2004-2006) and the Organization is currently engaged with the BCC in several projects within the EAF-Nansen Project. Other joint activities between FAO and the three countries take place almost continuously and FAO has very good relationships with the fisheries Ministries and Departments in the three countries.

Furthermore, FAO is contributing to bringing fisheries and aquaculture into the climate change discussions at a national, regional and global level. This has included release of a Policy Brief on building adaptive capacity[6], an FAO Expert Workshop on Climate Change Implications for Fisheries and Aquaculture in 2008[7] and a global review of climate change implications for the sector in 2009[8]. In 2009, FAO helped to form the Global Partnership for Climate, Fisheries and Aquaculture (PaCFA)[9], a voluntary grouping of 23 international organizations and sector bodies sharing a common concern for climate change interaction with global waters and living resources and their social and economic consequences. With FAO support, the PaCFA has been raising awareness of issues relating to oceans, fisheries and aquaculture within the United Nations Framework Convention on Climate Change (UNFCCC) processes. FAO is currently engaged in a number of projects and activities around the world towards strengthening adaptation and mitigation of climate change in fisheries and aquaculture including through the project "Climate Change, Fisheries and Aquaculture: Understanding the Consequences as a Basis for Planning and Implementing Suitable Responses and Adaptation Strategies funded by the Government of Japan, the EAF-Nansen Project and the NEPAD Agency – FAO Fisheries Project, Furthermore, climate change is always an important consideration in planning and implementation of an ecosystem approach to fisheries and therefore enters into all of FAO's extensive normative and field-based programmes of work on EAF.

The mandate of the Fisheries and Aquaculture Department of FAO is to facilitate and secure the long-term sustainable development and utilization of the world's fisheries and aquaculture resources. With respect to the GEF International Waters Program, FAO's areas of comparative advantage include its key responsibility for the Code of Conduct for Responsible Fisheries; enhancing institutional, planning and management

[6] FAO. 2007. Building adaptive capacity to climate change. Policies to sustain livelihoods and fisheries. New Directions in Fisheries – A Series of Policy Briefs on Development Issues, No. 08. Rome. 16 pp.

[7] FAO. 2008. Report of the FAO Expert Workshop on Climate Change Implications for Fisheries and Aquaculture, Rome, 7–9 April 2008. FAO Fisheries Report No. 870. Rome. 2008. 32 pp.

[8] FAO. 2009. Climate change implications for fisheries and aquaculture: overview of current scientific knowledge. FAO Fisheries and Aquaculture Technical Paper. No. 530. Rome. 212 pp.

[9] Current members of the PaCFA are the BCC, CBD, EBCD, FAO, IAEA, ICAFIS, ICES, ICFA, IFAD, ISDR, NACA, NACEE, NEPAD, OECD, OSPESCA, PICES, SEAFO, SPC, UNDP, UNEP, UNESCO-IOC, World Bank and WorldFish Center.

capacity for sustainable fisheries; sustainable and ecosystem-based fisheries management, including in particular technical and normative measures for the reduction of environmental impact of fisheries.
FAO has multi-disciplinary competence at the global level in all thematic areas of marine and freshwater fisheries in general and its Fisheries and Aquaculture Department is well staffed with internationally-recruited specialists at the headquarters in Rome as well as in the regional and country representations.

C.1 INDICATE THE CO-FINANCING AMOUNT THE AGENCY IS BRINGING TO THE PROJECT:
FAO will provide the following indicative co-financing: US$ 150 000 grant from the FAO Technical Cooperation Programme Facility and Trust Fund Projects, and US$ 500 000 in- kind.

C.2 HOW DOES THE PROJECT FIT INTO THE GEF AGENCY'S PROGRAM (REFLECTED IN DOCUMENTS SUCH AS UNDAF, CAS, ETC.) AND STAFF CAPACITY IN THE COUNTRY TO FOLLOW UP PROJECT IMPLEMENTATION:
The proposed project objectives are coherent with FAO's overall strategic objectives, which include:

- Sustainable management of fisheries and aquaculture resources;
- Sustainable management of land, water and genetic resources and improved responses to global environmental challenges affecting food and agriculture;
- Enabling environment for markets to improve livelihoods and rural development;
- Improved food security and better nutrition; and
- Gender equity in access to resources, goods, services and decision-making in rural areas.

Furthermore, the project objectives are also in line with FAO Climate Change Strategy and the FAO Adapt Programme, of which the six priority action areas for adaptation (in agriculture, forestry and fisheries) are as follows:

1. Development and application of data and knowledge for impact assessment and adaptation;
2. Support and improvement of governance for climate change adaptation;
3. Building of livelihood resilience to climate change;
4. Targeted approaches for conservation and sustainable management of biodiversity;
5. Identification, support and application of innovative technologies; and
6. Improved disaster risk management (DRM).

The project is directly in line with the 5-year FAO Strategy for fisheries, aquaculture and climate change[10].

This project will also contribute to the **UNDAF** of the three countries, in the following ways:
In the case of **Angola** (UNDAF 2009-2013), it will contribute to *Support Area 1 Governance, justice and data for development* – primarily in relation to establishment of disaster contingency plans. It will also be in line with contributions under *Support Area 4 Sustainable economic development*, particularly with regard to design and implementation of programmes for adaptation to climate change and ecosystem resilience.
With regard to **Namibia**, a new UNDAF is forthcoming in response to the new National Development Plan (NDP 4). However, in terms of UNDAF 2006-2010, the project will primarily contribute to *UNDAF Outcome 2.4 Strengthened national/regional capacities for humanitarian emergency response management* – primarily in relation to: 1) support to capacity building of national, regional and sub-regional institutions in emergency management and preparedness, including the development of emergency plans; 2) assistance in the formulation of Vulnerability Assistance Committees; and 3) support to line ministries and other institutions in capacity development for humanitarian crisis prevention and recovery as well as support to capacity building for coordination of disaster risk management.
The project will contribute to South Africa's UNDAF (2007-2010) *Outcome 1 - Democracy, good governance administration are strengthened* through the support of participatory planning and management processes; *Outcome 3 - Strengthened South African and sub-regional institutions to consolidate the African*

[10] FAO Strategy for fisheries, aquaculture and climate change: Framework and aims 2011–16. ftp://ftp.fao.org/fi/brochure/climate_change/stragegy_fi_aq_climate/2011/climate_change_2011.pdf

Agenda, promote global governance and South-South co-operation through support to regional shared natural resource management; and *Outcome 5 - Poverty eradication is intensified* through its support to building climate resilient food security and livelihoods strategies.
With respect to staff capacity, FAO has Representations in Angola, Namibia and South Africa with about 15 technical staff members, 21 national staff working in various decentralized projects, 17 administrative and operational support staff and numerous consultants in a range of technical areas of relevance to the project. The FAO Representations can mobilize complementary national and international technical expertise within the pool of projects they manage, and will provide in-country support for the preparation and implementation of the proposed project. In addition, FAO has a Regional Office for Africa in Accra, Ghana and a Sub-regional Office in Harare, Zimbabwe which is responsible for southern Africa. There are fisheries specialists in both offices with solid knowledge of the region. As for all projects, a multidisciplinary Project Task Force will be set up and draw on the range of technical expertise available throughout FAO to support the project, including from the regional and sub-regional fisheries officers, operational and other technical staff as required, as well as from the Fisheries and Aquaculture Department and other technical units, as necessary.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the country endorsement letter(s) or regional endorsement letter(s) with this template).

NAME	POSITION	MINISTRY	DATE *(Month, day, year)*
Dr. Carlos Avelino Manuel CADETE	National Director of Statistics, Planning and Studies Office	Ministry of Environment, Angola	
Mr. Teofilus NGHITILA	Director of Environmental Affairs	Ministry of Environment and Tourism, Namibia	**AUGUST 30, 2012**
Mr. Zaheer FAKIR	Acting Deputy Director-General Department of Environmental Affairs	Ministry of Water and Environmental Affairs, South Africa	**AUGUST 31, 2012**

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF policies and procedures and meets the GEF/LDCF/SCCF criteria for project identification and preparation.					
Agency Coordinator, Agency name	**Signature**	**Date *(Month, day, year)***	**Project Contact Person**	**Telephone**	**Email Address**
Garry Smith, OiC Investment Centre Division Technical Cooperation Department FAO Viale delle Terme di Caracalla 00153, Rome, Italy		August 31, 2012	Cassandra De Young Fishery Planning Analyst	+3906 5705 4335	Cassandra.Deyoung@fao.org
Barbara Cooney FAO GEF Coordinator Email: Barbara.Cooney@fao.org Tel: +3906 5705 5478		August 31, 2012			

APPENDIX 2

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APPENDIX 3

AGENDA

3 July 2013	
Session 1: Opening of the Workshop	
14.00 – 15.00	1. Opening of the workshop • Open by Dr. Johann Augustyn, Chairperson of the BCC Ecosystem Advisory Committee • Welcome remarks, Hashali Hamukuaya, BCC Executive Secretary • Workshop objectives and arrangements, Cassandra De Young, Fisheries Planning Analyst
15.00 – 15.30	Health break
Session 2: Introduction to the LDCF/SCCF Benguela project	
Objective: *Participants will be informed and updated about the project, its history, objectives and proposed framework for attaining these objectives and are introduced to the adaptation process, including vulnerability assessments*	
15.30 – 17.30	2. History and overview of the proposed LDCF/SCCF Adaptation project and moving from the project identification form to a project document and its implementation (review of the GEF PIF, the preparation phase and project implementation), Hashali Hamukuaya, BCC Executive Secretary 3. Report on the Vulnerability Assessment Workshop, Windhoek, April 2013, Kevern Cochrane, Rhodes University 4. Discussions 5. The EAF principles and processes and their links to climate change, Cassandra De Young, Fisheries Planning Analyst 6. Overview of the adaptation process and its components (assessing, planning, implementing and M&E) and understanding impacts and vulnerability – an overview of frameworks and methodologies (from theory to practice), Cassandra De Young, Fisheries Planning Analyst
4 July 2013	
Session 3: The adaptation process (assessing, planning, implementing and M&E)	
Objective: *Participants are briefed on recent bio-climatic information and an initial vulnerability assessment*	
8.30 – 9.30	7. Update on bio-climatic information from NansClim 8. Discussions
9.30 – 10.45	9. Initial vulnerability analysis in the BCLME socio-ecological system - Ian Hampton 10. Discussions
11.00 – 11.15	Health break
11.15 – 12.30	11. Plenary issue identification – how is change impacting the fisheries objectives of the Benguela and what are the likely impact scenarios over the next 10-20 years?
12.30 – 13.30	Lunch
Session 4: Scoping work to assess transboundary impacts and vulnerability and adaptation	
Objective: *Working groups will initiate processes to define relevant vulnerability assessment frameworks for transboundary issues and review past adaptations*	
13.30 – 15.45	12. Overview presentation on the vulnerability assessment process and introduction to group work

	13. Working Group Sessions to discuss: • Initial scoping to establish the transboundary issues to cover during the BCLME vulnerability assessment – from reported chemical/physical changes to their impacts on the resources, people, institutions, sectors, food security, economic growth and the ability of these systems to cope with these changes • Defining the transboundary vulnerability priority questions to be addressed during the BCLME vulnerability assessment – who is vulnerable to what and why? • Defining how to assess these vulnerabilities and who could undertake the assessments? • Adaptation in the Benguela – how have systems, people, industry, institutions adapted to changes in the transboundary system in the past? Is this enough? What are the constraints to adapting?
15.45 – 16.00	Health break
16.00 – 17.45	14. Plenary • Reporting by Working Groups to Plenary and Discussions • Identifying information needs and sources relevant to support the BCLME vulnerability assessment and adaptation planning • Identifying users of the vulnerability assessment - how and in what forms to communicate the findings for adaptation planning and to influence decision processes • Wrap up of Day 2 and introduction of Day 3
5 July 2013	
Session 5: Solidifying the project preparation phase	
Objective: *To clarify project preparation steps, ID partners, champions and resources during the preparation phase and, eventually, project implementation phase*	
8.30 – 9.00	15. Reminder of project preparation process, overview of PIF framework and PPG workplan for discussion and approval by participants
9.00 – 10.30	16. Working Group Session • Identifying stakeholders, partners, champions and resources for the project preparation and implementation phases, including considerations on how to engage stakeholders in process
10.30 – 10.45	Health break
10.45 – 11.30	17. Plenary • Reporting by Working Groups to Plenary and discussions
11.30 – 12.30	18. Working Group Session • Planning for the national workshops – who, what, where and when?
12.30 – 13.30	Lunch
13.30 – 16.30	19. Working Groups Session 6 • Drafting agendas for national workshops 20. Plenary • Reporting by Working Groups to Plenary and discussions
16.30 – 17.00	21. Conclusion and recommendations
17.00	22. Closing Remarks

APPENDIX 4

BENGUELA CURRENT PROJECT FRAMEWORK

Project Objective:
To build resilience and reduce vulnerability of the Benguela Current marine fisheries systems to climate change through strengthened adaptive capacity and implementation of participatory and integrated adaptive strategies in order to ensure food and livelihood security

Component	Expected Outcomes	Expected Outputs
1. Integrating fisheries climate change considerations into fisheries policies and planning as well as into broader intersectoral development and climate change policies and programmes		
	1.1 Regional and national authorities, as well as major stakeholder groups, informed of vulnerabilities across the region to predicted impacts of climate variability and change	
		1.1.1 Participatory and integrated vulnerability assessments of fisheries and fishery-dependent communities undertaken for all three countries (using methodology and approach developed during project preparation) and results disseminated
		1.1.2 Adaptation actions identified and prioritized with broad stakeholder involvement for at least 50 percent of the most vulnerable fishery systems
		1.1.3 Vulnerability assessment and planning processes incorporated into the Benguela Current Commission SAP and in the planning and managing frameworks of the National Authorities in all three countries to ensure vulnerability assessments and relevant adaptation plans and actions are updated every 3–5 years
	1.2 Climate change adaptation in fisheries and fishery-dependent communities mainstreamed into broader sectoral, food-security and climate change frameworks in all of the three countries	
		1.2.1 Gaps and opportunities for mainstreaming climate change adaptation in fisheries into national and regional food security, development, climate change and related policies identified in consultation with decision-makers. Draft policies, or addenda to existing policies, submitted to the National Authorities and BCC for adoption
		1.2.2 Working through the multi-sectoral BCC and its national member Ministries, opportunities will be created for inter-agency/inter-sectoral communication and joint discussion on vulnerabilities and adaptation requirements and strategies, including participatory workshops; thereby strengthening cross-sectoral collaboration and facilitating multi-disciplinary cooperation to anticipate and respond to adaptation needs
2. Piloting of improved climate-resilient fisheries practices		
	2.1 Vulnerability to climate change and variability reduced in local, small-scale fisheries and fishing communities identified as being at high risk, considering all stages from production through to post-harvest and trade	
		2.1.1 Based on outputs 1.1.1 and 1.1.2, stakeholder- and community-based adaptation action plans (addressing, as necessary, resource management, social and economic responses, governance issues, alternative and diversified livelihoods, local monitoring and surveillance systems), piloted in at least six high-risk local fisheries or communities
	2.2 National and regional institutions are prepared and have the capacities for integration of climate change adaptation (CCA) in fisheries in practice, based on thorough consultative planning processes	
		2.2.1 Management plans developed or strengthened to incorporate monitoring and adaptive response to climate variability and change in at least three national or regional fisheries

	2.3 Strengthened institutions and frameworks for effective monitoring and early warning to facilitate contingency planning at the regional and national levels	
		2.3.1 Existing national and regional frameworks for monitoring, processing and disseminating information on extreme weather events and climate-induced risks in fisheries (e.g. incidence of Benguela Niños, low oxygen events, severe storms) analysed, in collaboration with national agencies and the BCC. Any existing gaps and limitations identified and addressed through, for example, training in relevant skills, identification of additional specialised staff required, creation of focal points for cross-institution collaboration, and identification of equipment or infrastructure needed
3. Capacity building and promotion of improved climate-resilient fisheries practices		
	3.1 At least 50 percent of stakeholders and other affected individuals have moderate to high understanding and awareness (disaggregated by gender) of likely adverse impacts of climate change and variability on the fishery sector and appropriate response measures	
		3.1.1 Targeted, user-friendly information on impacts, risks and vulnerability to climate change and variability and adaptive responses has been produced and disseminated to national and regional stakeholders, and to local communities in the most highly vulnerable areas
	3.2 Local, national and regional institutions have strengthened capacity to reduce vulnerability to climate-induced risks through inclusion of adaptation into fisheries and multi-sectoral planning and management processes	
		3.2.1 Knowledge and understanding of at least 300 stakeholders from communities strengthened through targeted training on climate change risks and best adaptation practices in fisheries
		3.2.2 Knowledge and understanding of at least 150 stakeholders from government, universities, non- governmental organizations and industry strengthened through targeted training on climate change risks and best adaptation practices in fisheries
		3.2.3 Results and best-practices arising from pilot and other project activities synthesised and shared within Benguela Current fisheries stakeholders, other African large marine ecosystems (LMEs), regional fisheries bodies (RFBs) and economic communities (RECs), NEPAD Agency and other African high-level technical and policy fora
4. Monitoring and evaluation		
	4.1 Project implementation based on results-based management monitored and continually evaluated to ensure successful achievement of project objective, outcomes and outputs	
		4.1.1 Project monitoring system established and functioning efficiently to provide systematic information on progress in meeting project outcome and output targets, and adjustment of approaches as required to ensure this
		4.1.2 Midterm and final evaluations conducted
	4.2 Application in future planning and operations of project findings and lessons learned facilitated	
		4.2.1 Project-related “best practices” and “lessons learned” assessed, published and disseminated
		4.2.2 Website developed and maintained to share experiences and to facilitate awareness creation and information dissemination

APPENDIX 5

BENGUELA CURRENT PROJECT PREPARATION PHASE ACTIVITIES

Proposed Project Preparation Activities	Outputs of the PPG Activities
1. Multistakeholder consultations	
	1.1 Inception workshop report with an agreed work plan and recommendations to be considered in project design
	1.2 Three national workshop reports summarizing key inputs and recommendations of the stakeholders' roles and responsibilities
	1.3 Completion workshop report with final recommendations and inputs on the project design and budget
2. Establishment of vulnerability assessment methodologies for fisheries social-ecological systems	
	2.1 Existing vulnerability assessment processes and methodologies and their appropriateness to the region's adaptation planning needs reviewed
	2.2 Agreed scope, methodologies and processes for ranking vulnerable communities/systems, delimiting pilot communities/systems and for linking the assessments to the development of adaptation actions
	2.3 Workshop report summarizing experts inputs and recommendations on appropriate vulnerability assessment methodologies
3. Policy and institutional analysis for integrating fisheries climate change considerations into fisheries policies, planning and programmes	
	3.1 Existing fisheries and climate change legislation, regulations and management planning reviewed
	3.2 Institutional and technical capacity needs assessment conducted
	3.3 Initial assessment of existing national and regional frameworks for monitoring, processing and disseminating fisheries-relevant climate information
4. Identification of best adaptation practices for fisheries social-ecological systems	
	4.1 Review of global best adaptation planning practices and an analysis of current adaptation practices in the Benguela Current region conducted
	4.2 Criteria for prioritizing adaptation actions
5. Analysis of execution options, fiduciary standards assessment	
	5.1 Project institutional and implementation arrangements with clearly defined roles and responsibilities of project partners
	5.2 Fiduciary risk assessment of the executing agency completed and agreed action plan for mitigation of eventual fiduciary risks
6. Design of project components, and analyses of cost-effectiveness and sustainability	

	6.1 Detailed description of project components including activities, outputs, outcomes and impacts and associated indicators and targets (results framework)
	6.2 Detailed results budget
	6.3 Costed monitoring and evaluation plan
	6.4 Risk analyses and proposed mitigation measures
	6.5 Description of measures included in the project design to ensure sustainability of project results

APPENDIX 6

PRESENTATIONS SLIDES

Welcome Remarks and an Overview of the Project
Hashali Hamukuaya (Benguela Current Commission, Namibia)

Results of the April, 2013 BCC-FAO Regional Workshop on Assessing Climate Change Vulnerability in Fisheries and Aquaculture
Kevern Cochrane (Rhodes University, South Africa)

The Ecosystem Approach to Fisheries – its links to climate change
Cassandra De Young (FAO, Italy)

Vulnerability assessments in fisheries social-ecological systems: some experiences in their development and implementation for adaptation planning
Cassandra De Young (FAO, Italy)

Overview of the NansClim project
Åsmund Bjordal (Institute of Marine Research, Norway)

Initial assessment of vulnerability of humans to the effects of climate change on the Benguela Current Large Marine Ecosystem (BCLME)
Ian Hampton (Fisheries Resources Surveys, South Africa)

Review of the GEF PIF project framework, the PPG phase activities and steps of a vulnerability assessment
Cassandra De Young (FAO, Italy)

The objectives of the workshop were to bring together relevant stakeholders of the Benguela Large Marine Ecosystem to: (i) introduce the overall project and, more specifically, the project development phase; (ii) identify issues of transboundary concern that could be addressed in the project (from impacts to vulnerabilities, from past to future adaptation actions); (iii) clarify project preparation steps, identify partners, champions and resources during the preparation and, eventually, project implementation phases; and (iv) initiate discussion on the proposed national workshops to support the project development.