

# *Building Resilience to Climate Change in the Small Scale Fishery Sector in Kenya*

Coastal Oceans Research and Development in the Indian Ocean (CORDIO) East Africa

**FINAL PROJECT REPORT**

**for the Food and Agriculture Organization  
(FAO)**

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## LIST OF ABBREVIATIONS

BMUs	Beach Management Units
CC	Climate Change
CCA	Community Marine Conservation Area
CCP	Coastal Commons Platform
CCRS	Climate Change Response Strategy
CORDIO	Coastal Ocean Research and Development Indian Ocean
FAO	The Food and Agriculture Organization
FiD	Fisheries Department of the Ministry of Fisheries Development
ICZM	Integrated Coastal Zone Management
KCDP	The Kenya Coastal Development Project
KMFRI	Kenya Marine and Fisheries Research Institute
KWS	Kenya Wildlife Service
LMMA	Locally Managed Marine Areas
MOA	Ministry of Agriculture
MoFD	Ministry of Fisheries Development
SCs	Study Circles
SLED	Sustainable Livelihoods Enhancement and Diversification process

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## 1.0 INTRODUCTION

The Regional Fisheries office of FAO supported implementation of a project on climate adaptation in East Africa (Building Resilience in the Small Scale Fishery Sectors to the Adverse Impacts of Climate Change (CC) in East Africa), with activities in Burundi, Ethiopia, Kenya and Sudan. One aspect of this project was to build climate adaptation capacity of small scale coastal fisheries. Further, FAO's focus on the Ecosystem Approach to Fisheries Management and its Code of Conduct for Responsible Fishing places a strong emphasis on building adaptation capacity through maximizing natural resilience to climate change and promoting fishery activities that enhance this.

CORDIO East Africa is a non-profit research organization registered in Kenya, with over a decade of experience in reef and coastal ecosystem research, small-scale fisheries research, engagement with fisher groups and management advice, socio-economic research, schools and adult education delivery as well as engagement with local, national and regional governance processes. With climate change impacts becoming increasingly severe particularly for poor communities dependent on natural resources (e.g. small scale fisheries), CORDIO's work is now framed around enhancing adaptive capacity of coastal communities and ecosystems to climate change and other shocks that reduce their resilience.

This project provided an opportunity to build capacity on the Kenya coast on climate adaptation in the fisheries sector, building on existing platforms within CORDIO: experience with Beach Management Unit (BMU) training; participation in fisheries monitoring and research; identification of climate adaptation needs at community and household levels; development of adult education/technical training for self-help and community groups; and a resource of training materials and modules, freely available to community groups, projects and the public through the internet (Coastal Commons Platform).

Research and analysis of long term datasets of nearshore fishery catches and fish populations by CORDIO East Africa suggest that the shallow water demersal fish stocks are under significant and unsustainable pressure. Unless pre-emptive action is taken, these shallow water demersal fish stocks are unlikely to continue to support viable fisheries and thus provide food security for Kenya's coastal people. Through a policy brief submitted to the Ministry of Fisheries Development and other relevant stakeholders in November 2011, CORDIO East Africa recommended several actions that could be taken to halt the current situation and to improve coastal fisheries and their habitats so that they can continue to provide food and livelihoods long into the future. These recommendations were incorporated in discussions on proposed actions for climate resilient fisheries in this project.

Community members are the most conversant people in knowing or identifying their principal vulnerabilities, so community-led planning is an essential tool for participation and empowerment in building adaptive capacity. CORDIO has implemented initial fact-finding activities on climate adaptation in coastal communities in southern Kenya (Vanga) and using the Sustainable Livelihoods Enhancement and Diversification (SLED) Approach has helped communities develop their adaptation plans.

Through this project, the fisheries-specific aspects of vulnerability and adaptive capacity were explored in greater depth, to identify with the fishers their detailed needs in terms of threat abatement, management options, BMU by-laws, interactions/synergies with other sectors, government support (local, county, national) or financial support. Capacity building needs formed the core focus, as limited capacity is often a primary impediment to successful local action.

This project builds on a core base of small scale fisheries research, management advice and training conducted by CORDIO over the last 12 years, frequently in partnership with the Fisheries Department (FiD) of the Ministry of Fisheries Development. In particular it drew on recent analysis and synthesis of the impacts of fishing gears, legislation and the vulnerabilities of primary target species in the artisanal fisheries. Several of these species are likely to be most resilient to climate change and therefore provide an ideal focus for fishery related climate adaptation. The project reviewed recent

analyses and information to determine those fisheries likely to be more resilient to climate change in Kenya's small-scale coastal fisheries as well as management options best designed to facilitate resilience to climate change in a fishery. An example of fisheries management that combines aspects of the ecosystem approach to fisheries management, fish and fisheries biology and climate adaptation would be if a BMU elected to establish a community conservation area to manage spawning aggregations of one of the most fished species (*Siganus sutor*) which has potential to be resilient to climate change as it is not heavily dependent on reef habitat, and has a high population turn over.

The project also drew on other current projects running within CORDIO such as the SPIDER funded community environmental education programme and the WIOMSA funded climate vulnerability project. The opportunity to synergise with these concurrent projects greatly contributed to the scope of work that was undertaken and the achievements met within this FAO project.

Knowledge is essential for effective natural resource management, and new knowledge is often needed for effective adaptation to climate change. Capacity building needs were identified, and those relevant to climate-smart fisheries formed the focus of this activity.

Climate adaptation must occur within governance structures and community relationships of the coastal zone. Kenya has several national documents and policies that focus on or make reference to climate change impacts and adaptation, principally the national Climate Change Response Strategy (CCRS 2010), the Disaster Reduction/Management Policy, a National Communication Project, and an ICZM Action Plan. The CCRS refers to marine and fisheries adaptation actions (page 58), providing a policy context for this work, which will contribute to identification of specific actions for implementation under the policy, and the development of a National Adaptation Strategy in the future.

This project provided an opportunity to build capacity on the Kenya coast on climate adaptation in the fisheries sector, building on existing platforms and knowledge within CORDIO and partners. The focal area for the project was Kenya's south coast. This report highlights the entire implementation of the project from December 2011 to November 2012.

## **2. CORDIO-FAO LETTER OF AGREEMENT (LOA)**

### *2.1 Description of Objectives/Activities/Services*

The project agreement between CORDIO East Africa and The Regional Fisheries office of FAO was signed in December 2011 and is defined in the following Terms of Reference, for the period December 2011 to November 2012. CORDIO East Africa will undertake to:

In the context of climate adaptation research and implementation being developed on the Kenya coast, focus on the potential, needs and interventions to deliver climate-resilient small-scale fisheries:

The project had three objectives with a further four sub-objectives and these were addressed through seven project activities:

#### **A. Facilitate the development of fisheries-relevant community led adaptation plans**

i) Identify climate-resilient fisheries adaptation options

*Activity 1 - Identify climate-resilient fisheries adaptation options*

*Activity 2 - Implement prioritized interventions with BMUs*

ii) Develop relevant participatory monitoring protocols for climate-resilient fisheries and CC adaptation

*Activity 3 - Design monitoring and evaluation tools*

#### **B. Identify needs and implement capacity building to support climate adaptation**

i) Develop and implement relevant capacity building in focal communities  
*Activity 4 - Develop and implement relevant capacity building in focal communities*

ii) Develop training modules to maintain delivery of training in the future  
*Activity 5 - Develop training modules to maintain delivery of training in future*

***C. Enhance institutionalization of adaptation actions for climate-resilient fisheries through governance briefs and dialogue***

*Activity 6 - Build partnership with FiD*

*Activity 7 - Develop policy brief and discussions*

### **3. PROJECT OUTPUTS**

The project has successfully implemented all components and has addressed the three objectives and four sub-objectives and seven project activities. Achievements on these are detailed below.

#### **3.1. Activity 1) Identify climate-resilient fisheries adaptation options**

Identification of climate-resilient fisheries adaptation options was a critical step in this project since other activities built on this activity. The activity started by conducting a literature review about the vulnerability of Kenya's fisheries-dependant coastal communities to climate change highlighting challenges, opportunities and suggested interventions (Appendix 1). We provided brief evidence on vulnerability (exposure, sensitivity and adaptive capacity) to climate change of Kenya's coastal fisheries. The review was aimed at improving the project teams' knowledge about the target communities and the dependent resource, and also identifying and avoiding areas of possible overlaps with other similar ongoing/planned initiatives along the Kenya's coast. The review also constituted an important step within the Sustainable Livelihoods Enhancement and Diversification process (SLED) "Preparation for the SLED". The climate-resilient fisheries adaptation options were identified using the SLED process.

The results from the literature review were used to enhance discussions during two successful research feedback meetings held in Msambweni and Vanga in April (Appendix 2). The meetings aimed to provide feedback and disseminate to the community and partners the key fisheries research results from the recent CORDIO studies. These studies include climate adaptation surveys (Vanga, 2011), decision-making analysis of natural resource-based livelihoods (Msambweni-Vanga, 2011), responsible fisheries and artisanal gears review (whole coast 2010-11), spawning aggregations of target reef fish (Diani-Msambweni 2009-11), and new interests in locally managed marine areas. Marine and coastal environment education and awareness materials were also distributed to participants. The feedback and dissemination meetings gave fishers/coastal communities some context and discussion points for developing fisheries options for climate adaptation (Appendix 2). Issues of overfishing, use of destructive and illegal fishing gears, weak fisher organisations, targeting of fish spawning aggregations and other challenges associated with climate change were discussed at length.

Building on the information from the literature review and the feedback and dissemination meetings, another workshop was held with the Msambweni fisher community (including farmers, fishers and fish traders) where the SLED approach was used to identify climate change adaptation options (Appendix 3). Mechanisms to implement preferred interventions were also discussed. The specific objectives of the workshop were;

- i. To use/pilot test the Sustainable Livelihoods Approach (SLED) in East Africa.
- ii. To identify climate-resilient fisheries adaptation options
- iii. To identify other climate change adaptation plans

- iv. To identify relevant capacity building needs in focal communities to support climate adaptation
- v. To collect information useful in the development of participatory monitoring protocols for climate-resilient fisheries and CC adaptation
- vi. To build links with the relevant local government sectors to support climate adaptations through livelihoods diversification.

Five potential climate-resilient fisheries adaptation options were identified by the Msambweni fisher community through feedback meetings and focused group discussions (SLED). These comprise of interventions that would address issues of fisheries exploitation and management in light of a changing climate. The adaptation options include;

- i. Strengthening fisheries governance through Fisheries Beach Management Units (BMUs).
- ii. Establishment of a community marine conservation area (CCA) in Msambweni
- iii. Eradicating use of illegal and destructive fishing gears within Msambweni.
- iv. Development of off-shore fishing ventures. This would ensure the small-scale fishery expands their fishing range to deeper waters thereby reduce pressure on nearshore reef areas where overfishing compounds the ability of reef to cope with climate change.
- v. Support to farming groups increase crop production.

The above options are also in line with CORDIO's fisheries policy brief to government (November 2011) which recommended five actions that could be taken to halt the current situation and to improve coastal fisheries and their habitats so that they can continue to provide food and livelihoods long into the future.

### **3.2. Activity 2) implementation of prioritized interventions**

Based on the prioritized interventions from *activity 1*, plans for implementation were undertaken through BMU decision making-structures, in tandem with policy and management support from Fisheries Department (see Appendix 4) and the Ministry of Agriculture (MOA). To move towards actualizing the prioritized interventions, discussions with and among fishers were held throughout the project period for implementation of specific fisheries management actions that may confer resilience to climate change and other vulnerabilities. These discussions are still ongoing and will continue beyond the project period.

#### **3.2.1. Intervention 1) Strengthening fisheries governance through Fisheries Beach Management Units (BMUs).**

Under a changing climate, BMUs provide a vehicle for improved fisheries governance and poverty-focused and gender sensitive planning. BMUs also provide an entry point to the fisheries communities to facilitate a range of development interventions, as well as contribute to fisheries management. The community members in Msambweni concurred that their BMUs are weak, rarely network and therefore need strengthening to increase their power to veto use of unacceptable fishing gears within Msambweni and generally enable collective management of their fishery resource base. The community therefore placed a high priority on the intervention seeking to strengthen fisheries governance through Fisheries Beach Management Units (BMUs).

A series of meetings and visits to BMUs in Msambweni (Mkunguni, Mwaembe, Mwandamo and Munje) were conducted to strengthen the BMUs, and take forward some of the proposed fishery interventions (Appendix 3). This included a self-assessment by BMUs with the help of FiD. It was agreed that first process was therefore to embark on the process of developing fisheries BMU by-laws since they are key to the functioning of BMUs.

The Four Msambweni BMUs were trained in 2011 by FiD with support from CORDIO on fisheries co-management structures and administration, Fisheries management, BMU by-laws development and

financial management (Muturi et al. 2011). However, the BMUs did not manage to develop by-laws which essentially would give them the legal mandate to effectively manage their fishery resources. This project therefore supported the BMUs to finalize their by-laws and get them submitted to the Director of Fisheries for approval (Appendix 6). This involved technical training on fisheries by-law development and ground verification visits to BMU assemblies by fisheries officers from the Ministry of Fisheries Development. The by-laws were later reviewed and verified by the project team and the fisheries officers to ensure they conform to existing fisheries laws, and have been forwarded to the Director of Fisheries for approval. The BMUs were expected to agree on, among others, the fisheries management interventions to be included in the by-laws. This would consecutively provide the legal and institutional framework to support CCA establishment (see Appendix 7a). An improved working relation between Msambweni fishers and Fisheries Department has been observed as a result of the regular meetings held during the project period. During these meetings the broader context of climate vulnerability and adaptive capacity was also being considered for fisheries, such as the effect of different climate threats (e.g. storm frequency and predictability) on fishing activities and productivity.

### **3.2.2. Intervention 2) Establishment of a community marine conservation area (CCA) in Msambweni**

The establishment of CCAs would ensure increased fish production by protecting spawning stocks of *S. sutor* which is a key component in the artisanal fisheries catches in Kenya. It is a herbivorous fish and therefore its protection through CCAs and gear management will not only reduce overfishing but may also help maintain the resilience of coral reefs to climate change

The concept of a CCA, also called Locally Managed Marine Area (LMMA) originated in Fiji in the 1990s and spread through the Pacific; and recently to East Africa, and in Kenya in the last six years. These CCAs are spearheaded by local communities including their enforcement and management (Appendix 7a), and are now beginning to be adopted by a number of coastal communities in Kenya (Maina et al. 2011). Through this project, the BMUs held several consultative and awareness meetings (Appendix 2) aimed at establishing a CCA using a bottom-up approach comprising several methodological phases which the project team compiled into a training module (Appendix 7a). This included inviting community members who have established CCAs to Msambweni to share experiences with Msambweni fishers. The training module on CCAs allowed fishers to use a similar step-by-step process in establishing their CCAs: 1) Decision to establish a CCA; 2) establishing legal and institutional framework to support CCA establishment (Appendix 8); 3) stakeholder analysis and initial scoping; 4) Develop goals and objectives of the CCA; 5) Design of CCA (e.g location, size, boundaries, activities allowed within it); and 6) Preparation of management plan (governance and management structures). The step-by-step process was developed, taking into consideration the ecosystem-based and adaptive approach to management and also borrowed from FAO 2011 (Fisheries Management: Marine Protected Areas and Fisheries. FAO Technical Guidelines for Responsible Fisheries. No. 4, Suppl. 4. Rome, FAO. 2011). Through this project, steps 1, 2, 3 and 4 have been partially achieved through the SLED approach (Appendices 2 and 3), Study Circle meeting (Appendix 5) and by bringing in FiD to spearhead the establishment of fisheries BMU by-laws (Appendix 7d and 8). However, more work needs to be done on all steps including community mobilization and sensitization to fully gather support for the establishment of the CCA. It is important to note that based on experiences from other areas in the region and around the world, establishment of CCA can take several years, so the achievement reached here is very encouraging.

The proposed fishing sites to be incorporated into a CCA are: Mwangeje, Mtikano and Godzani. which are located nearshore and will form a single CCA. Three other sites under consideration are the spawning aggregation sites for rabbit fish, *Siganus sutor*, A, B, and C (names kept confidential

for security of these vulnerable sites). BMU members are considering protecting site A only because it is the furthest from shore and they fish it the least. They also said it had the highest live coral cover and may therefore have potential for attracting tourists. They felt that losing all three fishing grounds would be very difficult for them.

### ***3.2.3. Intervention 3) Eradicating use of illegal and destructive fishing gears within Msambweni.***

This intervention was implemented through various meetings and approaches (Appendix 2, 3, 5, 6, and 7a-d, 8). The fishers indicated the need to stop the use of some gears within their reef areas, particularly the large nets and the illegal beach seines (Samoilys et al. 2011). Further dialogue meetings between the BMUs and FiD would help achieve this goal. Msambweni fishers have strongly opposed the use of ringnets (small purse seines) within the reef areas by the neighbouring Gazi BMU. Fisheries Department has not offered much help and therefore fishers are disgruntled. Msambweni fishers have also opposed the use of large nets to target rabbit fish spawning aggregations. Supporting this intervention will greatly boost the recovery of the rabbitfish fishery. The fishers agreed to stop the use of ringnets within 5 nautical miles of their fishing areas. They were also opposed to the use of the illegal beach seines although they were not ready to discuss the issue openly in the meetings. It was agreed that the establishment of a CCA would help greatly in reducing the use of illegal fishing gears with negative impacts on the fishery.

### ***3.2.4. Intervention 4) Development of off-shore fishing ventures.***

This intervention proposed by the fishing communities, and frequently cited as an alternative livelihood to reduce overfishing of nearshore resources, was not implemented in this project but is recommended for consideration by FAO. The intervention if implemented would ensure the small-scale fishery expands their fishing range to deeper waters and different target species thereby reducing pressure on nearshore reef areas and species where overfishing is certainly occurring and is further exacerbated by climate change.

The capability of the local fishing boats is very limited to shallow waters mainly due to their size and lack of engines and the poor capability of the crews in offshore fishing. No significant negative impact is expected among the existing local coastal fishers or fishing communities if any development is to be made in the deep water areas, though off-shore fishery studies in Kenya are few and out-dated. Overall, Kenya is positive about the potential of the offshore fishery resources since bonito, skipjack and other small pelagics are underexploited according to the Indian Ocean Tuna Commission, while the shallow coastal waters are overexploited. Therefore, the best option is to shift fishing to the offshore waters based on the results of the research surveys currently underway through large scale projects such as ASLME and SWIOFP. But a comprehensive research study or survey is necessary to determine the current potential of the resources and viability for sustainable development.

### ***3.2.5. Intervention 5) Support to farming groups increase crop production.***

The Msambweni community practice both fishing and farming. Most participants in our workshops indicated they spend at least 4 months in a year on farming activities (mainly during winter months) while some join farming after coming from fishing. Analysis of livelihoods and resources flow within Msambweni community indicated that maize and rice are insufficiently available and therefore slight increase in production could ensure the community is self-sufficient. This intervention if implemented could reduce some fishing effort as some fishers who are also partly farmers would be likely to spend less time fishing.

The community members practicing farming were linked to the Ministry of Agriculture, which were very active during our focused group meetings. This intervention though important was not given much attention in this project due to financial constraints. A farmers group with more than 30 members from the Msambweni fishing community was formed to enable farmers and fishers/farmers

discuss issues of farming and access to extension services from the ministry of Agriculture. It is expected that a link with other ongoing projects in Msambweni from CORDIO and other organisations would take this initiative forward. Small-scale farmers, especially in the rain fed areas such as Msambweni, are faced with constraints in the production process, access to inputs and credit, marketing and value addition. Their production level is limited by the small size of their holdings, weaknesses in the land tenure system and unequal access to irrigation water. They often encounter difficulty in accessing farm machinery from the government and application of modern technologies because of the high cost and greater risk involved.

### **3.3. Activity 3) design monitoring and evaluation tools**

Design of monitoring and evaluation tools to be applied by the BMUs, to support assessment of the adaptation interventions in Activity 2 was a primary focus of Activity 3. After the community identified the relevant fisheries interventions (e.g. establishment of a community conservation areas, Fisheries BMU by-laws), training was provided in these two areas and posters designed to that effect (Appendix 7a-d), with Appendix 7c on fishery resource monitoring.

The content of the M&E tools, designed in the form of posters, were reviewed by CORDIO, fisheries officers and fishers and shared with fishers through the BMUs to ensure that they are relevant to the wider fishing community. The posters will serve as long term M&E tools that provide guidance on how the interventions can be carried out. This activity was delayed owing to the difficulty to progress without a clear idea of which fishery options were likely to be selected with which to go forward.

Through the feedback and disseminations meetings and the workshop on identification of climate resilient fisheries options, the participants indicated that the catches of sardines, rabbit fish, grunts and tuna species have declined over time. This indicates that they are important fish groups to be monitored. Further deliberation with the BMUs on prioritized climate resilient fisheries options provided detailed information on parameters to be evaluated. These tools will be integrated with the reporting responsibilities of BMUs with the Fisheries Dept. Concepts of ecosystem and resource health and resilience provide a foundation, to identify targets for monitoring and assessment.

### **3.4. Activities 4) develop and implement relevant capacity building in focal communities**

Appropriate knowledge is essential for effective NR management, and new knowledge is often needed for effective adaptation to climate change. Capacity building needs were identified, and those relevant to climate-smart fisheries formed the focus of this activity.

This activity involved development and delivery of training modules targeted at BMUs. The training modules were developed based on the literature review (Appendix 1), adaptation actions (see section 2.1), fishery management responses (see Appendix 2, section 2.3 above) and participatory monitoring needs identified in Activities 1-3.

The communities identified areas of interest as well as what they considered the most effective ways of capacity building. The need to address education needs at various levels was identified as a major priority by the community members particularly in the areas of literacy, environment and livelihood diversification and health matters. They cited the use of grassroots meetings, a range of awareness sessions and establishment of study circles as avenues through which information could be channeled. Topical areas of interest were listed as follows:

- i. Participatory research techniques e.g. fish records, ways of determining fish abundance, etc
- ii. Information about Community Conservation Areas and procedure for establishment
- iii. Information about spawning behavior of fish
- iv. Information about fish types and sizes to harvest and gears to use in order to maintain sustainability of the fisheries particularly for those just beginning to fish
- v. How to form and sustain networks e.g. collaboration among BMUs in order to assert greater influence

- vi. Information on climate change and its impacts
- vii. Information on how to access markets for marine and coastal products

The adult education model based on rotational circles developed by CORDIO was used (Appendix 5), emphasizing group learning, rotating leadership within the groups, and development of both individuals and the group. The training modules administered to the BMUs included: a) basics such as numeracy/literacy and ICT use (modules already developed), b) fisheries and fish ecology education and awareness seminars already developed by CORDIO in consultation with the Fisheries Dept, and c) materials on those fisheries likely to be more resilient to climate change in Kenya's small-scale coastal fisheries as well as management options best designed to resist climate change. Some of the fishers also involved in farming got an opportunity to register together to form a group to access extension services from the Ministry of Agriculture. This was identified by the community as an appropriate intervention for the fishers as it will reduce pressure on fishing. For sustainability, the training materials were printed (Appendix 7a-d) and also compiled in electronic format for archiving and permanent accessibility on a 'Coastal Commons' internet portal being developed by CORDIO (<http://196.1.157.67/cordioea>). This has a focus on supporting climate adaptation and eLearning, focused on accessibility for disadvantaged groups such as coastal fishers.

### **3.5. Activity 5) - develop training modules to maintain delivery of training in future**

Priority training modules were delivered to four focal BMUs by the fisheries officers and CORDIO team in support of the successful adoption of climate-resilient practices identified in Activities 1-3. The activities of this project were implemented in collaboration with the Ministry of Fisheries Development to take advantage of the Kenya Coastal Development Project (KCDP, funded by World Bank/GEF) to enable up scaling of BMU training Materials developed will be incorporated into the future BMU training program by FiD. To facilitate the up-scaling and collaboration, FiD appointed one fishery officer to be the contact person in this project (Appendix 4). The Course content of the training modules covering priority interventions was produced and shared through study circles in the BMUs. This content is being refined for uploading onto CORDIO's e-learning platform (Coastal Commons Platform). This will make it available to a wider audience and ensure that it remains accessible beyond the project time frame.

### **3.6. Activity 6) – build partnership with FiD**

This activity focused on building links with the relevant local government sectors to support climate adaptation in the Fisheries sector. The Fisheries Department (FiD) officers were briefed on project activities and a meeting held for detailed discussion with them on how to integrate the relevant project activities. A senior fisheries officer from the Ministry of Fisheries Development was therefore assigned to this project to ensure integration of activities with FiD (Appendix 4). The Officer has been actively involved in facilitating the development of the BMU by laws and in discussions on establishment of community marine conservation areas (CCAs). The Kenya Coastal Development Project (KCDP, funded by World Bank/GEF) is considering nominating a contact person from CORDIO to enable linkage, integration and up scaling of related activities. Other relevant government organizations have actively been involved in planning activities. A number of formal and informal meetings have been held with the partners. Some of the outcome of a meeting held between the Provincial Director of Fisheries and the project team in April 2012 had the following outcomes:

- Project endorsement by FiD, the Ministry registered their gratitude at being informed of the project at the initial stages.
- Interest in supporting the process to gazette spawning sites as CCAs in Msambweni area
- Willingness to participate in a community and stakeholder meeting to deliberate on the issues of fish spawning sites. Such a meeting would involve KWS, KMFRI, sport fishers and other identified stakeholders

- Interest in fast tracking the gazettelement of the fish spawning sites as coordinates and a map are already existing from the CORDIO research on spawning areas
- Willingness to assist in the preparation of a policy brief document drawing from the experience of creating and implementing CCAs
- Willingness to collaborate with CORDIO in reaching out to the youth e.g. provide technical support in aquaculture to Tiwi massive which is one of the groups in the SPIDER II project
- Interest in the Coastal Commons Platform and would like to be updated on its progress as well as access the information on it
- Willingness to appoint a senior fisheries officer to liaise with the CORDIO team on the FAO project as well as coordinate local activities with FiD field staff
- Additionally, they informed the meeting that FiD is in the process of creating gender and youth desks in order to enhance integration of women and youth in fisheries activities

### **3.7. Activity 7) develop policy brief and discussions**

A governance assessment was conducted with the officers involved in Activity 6, to develop a policy brief. Content for the policy brief was discussed throughout the project, and progressed from the range of issues identified in CORDIO's November 2011 fisheries policy brief to specific climate adaptation actions and recommendations trialed in this project. The synergies and linkages that need to be developed to support climate adaptation for small scale fishers were identified, to further institutionalize climate adaptation in the local government machinery, and thereby facilitate support to implementation of climate change adaptation. the Policy Brief: Recommendations for Building Resilience to Climate Change in the Small Scale Fishery Sector in Kenya is attached as Appendix 9.

The final version of the brief will be targeted to inform Kenya's national Climate Adaptation Policy and Oceans and Fisheries Policy to ensure marine and fisheries sectors are considered in national climate adaptation processes.

## **4.0 PROJECT IMPLEMENTATION: COMPARISON OF PLANNED VERSUS ACTUAL ACTIVITIES**

The detailed project implementation plan outlining how different activities were implemented is shown in Table. 1.

**Table 1.** The detailed project implementation plan and the progress status of activities during the project period, Dec 2011- November 2012

Project Activities based on the revised implementation plan	Timeline (December 2011 – November 2012)					
	Dec-Feb	Mar - April	May-June	Jul-Aug	Sep-Oct	Nov
<b><i>Activity 1) Identify climate-resilient fisheries adaptation options</i></b>						
i) Develop project implementation plan	√					
ii) Review status, challenges and opportunities suggested by communities in the past (desk top)	√	√				
iii) Identify key research result and adaption actions to feedback to the BMUs	√	√				
iv) Develop guiding Questions for use in FGDs from 2 and 3 above and select BMUs.		√				
v) Use SLED to identify and rank interventions through FGDs (Fieldwork)		√				
vi) Discussions with BMUs/fishers to devise mechanisms to implement preferred interventions		√	√			
vii) Analyze feedback from BMUs/fishers (Fieldwork)		√	√			
<b><i>Activity 2) interventions, BMUs</i></b>						
i) Meetings with BMUs on implementation of priority interventions			√	√	√	
ii) Initiate data monitoring of fish-related measures (field work)			√	√	√	
iii) Monitor implementation of data monitoring of fish-related measures				√	√	√
<b><i>Activity 3) design monitoring and evaluation tools</i></b>						
i) Identify targets to be monitored by BMUs based on BMU regulations (e.g fish spp, catch, fishing grounds, mapping)			√	√		
ii) Using activity 3(i) above, re-design CORDIO's participatory mapping and monitoring posters into new monitoring and evaluation tools useful in assessment of options identified in Activity 2.			√	√	√	
<b><i>Activity 4) develop and implement relevant capacity building in focal communities</i></b>						
i) Establish Study circles for group learning			√	√		
ii) Introduce existing modules to groups		√	√	√		

Project Activities based on the revised implementation plan	Timeline (December 2011 – November 2012)					
	Dec-Feb	Mar - April	May-June	Jul-Aug	Sep-Oct	Nov
iii) Pilot new training modules			√	√	√	
iv) Develop additional materials for Coastal Commons Platform					√	√
<b>Activity 5) develop training modules to maintain delivery of training in future</b>						
i) Planning meetings with FiD to integrate developed modules into FiD training programmes			√	√	√	
ii) Deliver training modules to BMUs				√	√	
<b>Activity 6) - partnership with FiD</b>						
i) Formal and informal meetings with FiD to explain the project	√	√	√	√	√	√
ii) Identification of partners in the local administration	√	√				
iii) Collaborative planning with FiD: recommendation of key BMU sites, general linkages		√		√	√	
<b>Activity 7) policy brief and discussions</b>						
i) Discussion and synthesis of project results					√	√
ii) Governance assessment		√	√	√		
iii) Development of policy brief					√	√
<b>Reporting</b>						
Inception Report		√				
Progress report			√			
Final Report						√

(√= done)

## **LIST OF APPENDICES**

All appendices are attached as separate documents due to size. They are available from CORDIO East Africa on request.

**Appendix 1:** A Review of Climate Change vulnerability of Kenya's fisheries-dependant coastal communities; challenges and opportunities to climate change and suggested interventions.

**Appendix 2:** Proceedings of Feedback and Dissemination Workshops Held in Vanga and Msambweni on 18th and 19th April 2012

**Appendix 3:** Identification of climate-resilient fisheries adaptation options using SLED approach.

**Appendix 4:** Letter from Fisheries Department, Ministry of Fisheries Development

**Appendix 5:** Establishment of study circles within fisheries Beach Management (BMUs), Msambweni South coast

**Appendix 6:** The Fisheries BMU By-laws for Mwandamo, Mkunguni and Mwaembe and Munje BMUs, Msambweni

**Appendix 7a:** A poster on Community Marine Conservation Areas

**Appendix 7b:** A poster on Study Circles (SCs) - A Model For Adult Participatory Learning

**Appendix 7c:** A poster on Community Fisheries Resource Monitoring

**Appendix 7d:** Fisheries BMU By-laws Poster

**Appendix 8:** Fisheries BMU By-laws for Mkunguni, Munje, Mwaembe and ,Mwandamo BMUs, MoFD- Nov 2012.doc

**Appendix 9:** Draft Policy brief on climate resilient fisheries options for artisanal fisheries