United Nations Environment Programme

Terminal Evaluation of the UNEP GEF Medium Sized Project: Coastal Resilience to Climate Change: Developing a Generalizable Method for Assessing Vulnerability and Adaptation of Mangroves and Associated Ecosystems

by

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Project Number: **GEF ID 9092/ GFL/2328 - 2712 – 4913**

Geographical Scope: Multi-country

Start Date: March 2006

Completion Date: December 2010

Executing Agency: WWF US

Contents

Acronyms and Abbreviations

CBD	Convention on Biological Diversity
CBO	Community Based Organization
CMN	Cameroon Mangrove Network
CWCS	Cameroon Wetlands Conservation Society
EAME	Eastern Africa Marine Ecoregion
EARPO	East Africa Regional Programme Office
GAG	Global Advisory Group
GEB	Global Environmental Benefit
GEF	Global Environment Facility
LME	Large Marine Ecosystem
LMMA	Locally Managed Marine Area
M & E	Monitoring and Evaluation
MFF	Mangroves for the Future
MOU	Memorandum of Understanding
MPA	Marine Protected Area
MSP	Medium Size Project
MTR	Mid-term Review
NCCCT	National Climate Change Country Team
NGO	Non-Governmental Organization
OP	Operational Programme
PIR	Project Implementation Review
POW	Programme of Work
ROtI	Review of Outcomes to Impacts
SP	Strategic Priority
SPREP	Secretariat of the Pacific Regional Environment Program
TE	Terminal Evaluation
TOR	Terms of Reference
TWAP	Transboundary Waters Assessment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WCS	Wetlands International Conservation Society
WWF	World Wildlife Fund

Project Identification Table

Project Title:	Coastal Resilience to Climate Change: Developing a Generalizable Method for Assessing Vulnerability and Adaptation of Mangroves and Associated Ecosystems		
Executing Agency:	UNEP		
Project partners:	World Wildlife Fund-US		
Geographical Scope:	Multi-country		
Participating Countries:	Cameroon, Tanzania, Fiji		
GEF project ID:	2092	**IMIS number**	GFL / 4913
Focal Area(s):	Biodiversity	**GEF OP #:**	2
GEF Strategic Priority/Objective:	BD2	**GEF approval date:**	20 Sep 2005
UNEP approval date:	17 May 2006	**First Disbursement:**	19 May 2006
Actual start date:	March 2006	**Planned duration:**	50 months
Intended completion date:	April 2009	**Actual completion date:**	December 2010
Project Type:	MSP	**GEF Allocation:**	USD975,000
PDF GEF cost:	USD25,000	**PDF co-financing:**	USD25,000
Expected MSP/FSP Co-financing:	US$ 1,000,000	**Total Cost:**	US$ 2,000,000
Mid-term review/eval. (planned date):	September, 2008	**Terminal Evaluation (actual date):**	N/A
Mid-term review/eval. (actual date):	April 2009	**No. of revisions:**	One
Date of last Steering Committee meeting:	Oct 2010, Fiji	**Date of last Revision*:**	8th August 2008
Disbursement as of 30 June 2009:	US$ 375,325	**Date of financial closure:**	N/A
Total co-financing realized as of 30 June 2009:	USD1,089,431	**Actual expenditures reported as of 30 June 2009:**	USD375,325
Leveraged financing		**Actual expenditures entered in IMIS as of 30 June 2009:**	US$ 375,325

Executive Summary

A. Introduction

1. The Global Environment Facility (GEF) medium size project "Coastal Resilience to Climate Change: Developing a Generalizable Method for Assessing Vulnerability and Adaptation of Mangroves and Associated Ecosystems" was implemented from 2006 – 2010 by UNEP/GEF and executed by WWF US in collaboration with national lead agencies in the three project countries (Cameroon, Fiji and Tanzania): WWF Tanzania Programme Office, WWF-East Africa Regional Program Office (EARPO) and EAME National Committee for Tanzania; WWF Fiji and WWF South Pacific in Fiji; and WWF Cameroon. The total cost of the project was US$1,000,000 of GEF funds and reported co-financing of US$1,089, 431 from WWF US.

2. Specifically, the project aimed to develop a generalizable methodology for climate change vulnerability assessment and adaptation strategies for mangroves and associated ecosystems, and to build the capacity of stakeholders in Cameroon, Fiji and Tanzania, with the expectation that the project results would be adopted and applied in other sites and countries. Concern over the potentially serious consequences of climate change impacts on coastal ecosystems and the human communities that rely on them as well as the limited capacity of countries to respond to such impacts propelled the development of this project. The three project countries are particularly vulnerable to the effects of climate change not only due to physical and geographic characteristics, but also lack the institutional capacity to address climate change impacts. In the second year, the project design was revised to reorient the focus on solely mangroves and the impacts of sea level rise.

3. A Mid-term Review (MTR), which was carried out in 2009, reported that the project was experiencing management and execution problems that affected its performance, including frequent staff turnover, inconsistency between project management and oversight, and the intended integration of activities at the global level. Further, the MTR highlighted the overly ambitious nature of the project design and the top-down manner in which it was implemented. Serious doubts were expressed in the MTR that the project's objectives would be achieved, and a number of recommendations were made to address the issues, including focusing only on mangroves and a no-cost extension of the project.

B. Evaluation findings and conclusions

4. The major objective of the terminal evaluation was to assess project performance (in terms of relevance, effectiveness and efficiency), and determine outcomes and impacts (actual and potential) stemming from the project, including their sustainability.

5. The project's objectives and implementation have remained relevant in the context of the issues it intended to address. The project's aim to build capacity for developing climate change adaptation strategies for mangrove ecosystems was very pertinent to UNEP's programmatic objectives and expected accomplishments under its Climate Change and Ecosystem Management cross-cutting priorities of its Medium-term Strategy 2010–2013 and to the Bali Strategic Plan for Technology Support and Capacity-building. The project's objectives were also pertinent to the GEF Biodiversity Focal Area and the GEF Operational Programme (OP) 2, the objective of which is "*the conservation and sustainable use of the biological resources in coastal, marine, and freshwater ecosystems*." Developing adaptation strategies that would increase sustainability of mangrove ecosystems (under both protected and non-protected status) was responsive to emerging issues under GEF Strategic Priority (SP) I (Catalyzing Sustainability of Protected Areas).

6. Cameroon, Fiji and Tanzania are parties to the United Nations Framework Convention on Climate Change and the Convention on Biological Diversity, and identified coastal ecosystems to be of priority within their National Biodiversity Strategic Action Plans under the latter.

7. The evaluation of effectiveness was based on the extent to which the objectives were achieved (Improve guidelines for managing mangrove ecosystems vulnerable to climate change; and Strengthen capacity of local, regional, and global conservation practitioners in critical aspects of climate change adaptation). Overall these objectives have been achieved, surpassing expectations expressed in the MTR. The project tested mangrove vulnerability assessment methodologies and adaptation strategies in the three countries, and the findings guided the development of the generalizable methodology. The guidelines were synthesized to produce the methods manual "*Climate Change Vulnerability Assessment and Adaptation Planning for Mangrove Systems*", which was published by WWF.

8. Several of the studies on which the manual was based have been published internationally in peer-reviewed journals and the manual itself has received good reviews from recognized scientific experts. Further, the diversity of vulnerability assessment approaches used independently in the three countries resulted in a more robust methodology. The manual is considered by the TE team to be scientifically credible and robust, and to meet international standards.

9. By directly engaging stakeholders at local and national levels in the execution of the project as well as through targeted training workshops, the project has laid a strong foundation for climate change vulnerability assessments and adaptation of mangroves within the three countries and also helped to incorporate some of their needs. At the start of the project, there was limited understanding and capacity for vulnerability assessment and adaption even within the WWF network. By the end of the project, partners and stakeholders had gained considerable understanding and skills regarding these issues, as evident in the technical reports produced, continuation of activities in the post-project period, and uptake of elements of the project results in other initiatives. It was evident that the project had also succeeded in increasing awareness among a wide cross section of stakeholders about climate change impacts on mangrove ecosystems and the human communities that rely on them.

10. Project proponents had anticipated that the guidelines would be used by regional and global stakeholders (a project Output), including WWF networks, but use of the guidelines has been sporadic. Interest in the guidelines was expressed by regional and global organizations, but the TE team was unable to verify to what extent the guidelines were actually being used. It was unrealistic to expect that the guidelines would be used at regional and global levels during the relatively short timeframe. Provisions should have been made in the project design for adequate time and financial resources for adoption of the guidelines at regional and global levels, for example, through a five-year project instead of three years. The guidelines need to be more widely disseminated and promoted at all levels if there is to be any significant impact at these levels.

11. Project implementation was cost-effective, owing to a number of factors, including appropriate site selection, establishment of effective partnerships with key organizations, agencies and local communities among others, building on the ongoing programmes of partners and utilization of existing methods and data sets, working with a common ecosystem in diverse ecological contexts in three different countries, and reorientation of the project to focus on only mangroves and the impacts of sea level rise.

12. On the other hand, a number of factors reduced efficiency and hindered progress in the first two years of the project, including inadequate in-country expertise, high staff

turnover (particularly changes in WWF global coordinators), poor communication among project partners, limited technical guidance to the countries, and initial problems in project management. In addition, efficiency (in terms of timelines) was reduced due to the extended period of time taken to finalize agreements between the lead executing agency and its key partners, which led to the late release of funds from UNEP. The project lost nearly one year following the inception meeting in 2005, as a consequence of which a no-cost extension was required to ensure that the objectives were achieved. Revision of the project logical framework (log frame) or results framework to focus on only mangroves and redefine the objectives, outcomes and outputs as well as hiring of a more experienced global coordinator and fully engaging the Chief Scientist following the MTR greatly helped to increased project performance in the remaining period.

13. The project's outputs and outcomes provide a strong foundation for building ecosystem resilience to climate change. In addition, a number of drivers such as strengthened capacity and increased awareness in the countries catalyze progress towards achievement of impacts or Global Environmental Benefits (GEBs), as shown in the Review of Outcomes to Impact (ROtI) analysis. However, the likelihood that the GEBs will be achieved is based on a number of assumptions including the availability of adequate human and financial resources, mainstreaming climate change into policy and decision-making, improved monitoring and enforcement, and addressing other human pressures on the ecosystem. Long term impacts will more likely accrue if climate change adaptation forms part of a wider framework for management of mangrove ecosystems. The overall likelihood that the GEBs will be achieved is rated on a six-point scale as Likely (BB).

14. There is good prospect for sustainability of project results, but this is contingent on the adaptation, replication and upscaling of the vulnerability assessments and adaptation measures, and importantly, the required financial, socio-political and institutional support. The project design did not make provisions for direct, continued financing, but incorporation of some aspects of the guidelines in ongoing and planned projects and programmes that are being funded from national budgets and/or bilateral donors indicates some degree of financial sustainability.

15. After two years following the end of the project, there was still considerable interest and enthusiasm among the former project partners, including government officials and local communities for continued implementation of vulnerability assessment and climate change adaptation. The project has already influenced policy within the countries, but several factors could place socio-political sustainability at risk, for example, change in government priorities, communities not deriving any direct benefits from adaptation, and social and political instability.

16. By engaging representatives from diverse institutions within the three countries (government, academic, CBOs, and NGOs), the project helped to strengthen the existing institutional framework for climate change vulnerability assessment and adaptation in all three countries. Nevertheless, the institutional framework in the countries needs further strengthening, especially in regard to adequate human and financial resources, availability of data and expertise, and clear definition of roles and mandates with respect to mangrove management.

17. The overall rating for this project is **Satisfactory**.

C. Lessons Learned

18. A number of valuable lessons learned are given in the MTR report and Project Terminal Report. These include lessons related to technical aspects as well as to overall management of the project. The following lessons (some of which reinforce those from the MTR and Terminal Report) emerged during the TE (not arranged in any order of priority):

i. Project documents need careful screening before approval to ensure that they are technically and operationally feasible and that goals and objectives are realistic under the proposed timeframe and budget, and are consistent with realities on the ground.

ii. A number of factors were critical in successful completion of the project, including establishing a network of partners at all levels; leveraging the work of WWF, existing partners and others; taking advantage of synergies with other organizations; and taking adaptive measures to reorient the project, which increased efficiency.

iii. Inputs of stakeholders and potential partners into project design are very important for projects whose implementation and execution rely on their involvement. This helps to ensure that the project's design, objectives, activities, and expectations are in line with their capacity and capability, and promotes efficiency and ownership.

iv. Engagement of a wide cross-section of stakeholders at all levels, including local communities, is important in projects in which the achievement of the expected long term impacts is highly dependent on their actions. Further, identifying 'champions' among the different groups of stakeholders not only contributes to successful project implementation but also facilitates progress towards the global environmental objectives in the post-project period.

v. Long inception periods can adversely impact project performance, as many factors necessary for success can change during this time, for example, priorities of stakeholders, availability of persons involved in project design, co-financing arrangements, loss of institutional memory, etc. A significant amount of time is required during the inception phase for various preparatory activities such as negotiation and signing of contracts with executing agencies, familiarization with GEF/UNEP procedures, etc. This should be taken into consideration in developing project workplans.

vi. For a project of this technical nature, it is important to provide adequate and continuous technical support to project executants from the start (e.g., through establishment of a global technical advisory panel). Limited technical support during the first year and a half of the project hindered progress. The Global Coordinator was expected to provide technical guidance but the demands of managing such a complex project and meagre budgetary resources limited his ability to effectively provide such guidance in the early stages of the project.

vii. Having a strong technical background does not necessarily make an individual a competent project manager. This expectation could result in delays and underperformance of the project. It was expected that the first global coordinator, who had a strong scientific background, would both manage the project and provide technical guidance, but limited project management experience contributed to some of the problems initially experienced. Management and technical/scientific tasks need to be clearly separated and appropriately experienced persons hired.

viii. Expecting existing executing agency personnel to assume responsibilities for the management of the project in addition to their current duties places a heavy burden

on these individuals, and could jeopardize project performance. Provisions need to be made in the project budget to ensure that the required capacity is available (e.g., for hiring additional staff). Further, roles and responsibilities need to be clearly described and understood by all parties and staff turnover during implementation minimized as far as possible.

ix. Ongoing communication among all partners involved in project implementation is crucial, especially when it involves many partners in multiple countries and sites, and when their respective outputs are to contribute to one overall deliverable, in this case the generalizable methodology. There must be a common understanding among all concerned about the expectations and modalities for achieving these expectations. The achievement of project goals and objectives should not be left to chance.

x. Developing methodologies and building capacity for climate change vulnerability assessment and adaptation planning at regional and global levels within a three year period was unrealistic. Adequate time, financial resources, and planning are needed to strengthen capacity, and a longer time frame (five years) should have been anticipated to facilitate capacity strengthening as well as upscaling and replication of the guidelines at regional and global levels.

D. Recommendations

19. As the project has ended and this is the terminal evaluation, the following recommendations look ahead to the post-project period and development and implementation of other GEF projects and sustaining the results of the Coastal Resilience Project. The recommendations are targeted to UNEP, WWF, and Government Agencies responsible for mangrove management and climate change adaptation.

i. The project created a considerable amount of interest and momentum within the countries and among a number of regional and international organizations, which evidently still exists. Further, the manual was produced and capacity strengthened in the countries for vulnerability assessment and adaptation, but follow-on activities are required for replicating and upscaling and addressing how results could be taken up into policy development. It is recommended that UNEP and WWF seek funding from GEF and other appropriate donors for a follow-on project (Phase 2) and identify opportunities for the uptake of the results in other relevant planned projects and programmes.

ii. It is recommended that WWF and UNEP re-initiate efforts to disseminate and promote the mangrove manual among conservation practitioners in other countries and regions, particularly where mangrove ecosystems are under high threat from climate change impacts. These agencies should also promote knowledge-sharing through their networks on climate change vulnerability and adaptation of mangroves, which should include translation of the guidelines into other languages and preparation of public education materials aimed at local communities.

iii. The UNEP Task Manager, in collaboration with WWF (US and Cameroon) and the Chief Scientist, should identify a satisfactory solution to ensure that WWF Cameroon is given appropriate credit and more visibility for its contribution to the development of the mangrove manual, both in the electronic, online version and future printed copies of the manual.

iv. Government Agencies responsible for mangrove management and climate change adaptation in Cameroon, Fiji, and Tanzania should integrate climate change

vulnerability assessment and adaptation into an overall strategy for mangrove management that addresses other pressures on mangrove ecosystems in a holistic manner. This will assist in progress towards achievement of the global environmental benefits.

v. It is recommended that Government Agencies responsible for mangrove management continue with monitoring activities (sea level rise, mangrove status, etc.), in collaboration with NGOs, CBOs and local communities. Financial support for these activities could be obtained, for example, from national budgetary allocations, payment for ecosystem services, and other funding mechanisms.

Part I. Evaluation Background

A. Context

20. The Global Environment Facility (GEF) Medium size project (MSP) 'Coastal Resilience to Climate Change: Developing a Generalizable Method for Assessing Vulnerability and Adaptation of Mangroves and Associated Ecosystems' (hereinafter referred to as the Project or Coastal Resilience Project) arose out of concern over the potentially serious consequences of climate change impacts on coastal ecosystems and the human communities that rely on them. Low-lying coastal areas, particularly those in tropical Africa, South and Southeast Asia, and the South Pacific, are predicted to experience among the most severe impacts of global climate change. There have been no mechanisms by which the direct environmental effects (altered temperature regimes, precipitation patterns, extreme weather events, among others) of climate change could be ameliorated in the short term. Scientific findings are showing that marked changes are already taking place and are impacting these coastal ecosystems, and will have increasingly adverse effects even after atmospheric CO_2 emissions may be stabilized or reduced. Recent synthesis has cautioned that society may already be faced with irreversible biophysical changes based on recent measurements and observations. Since it may not be possible to completely prevent the occurrence of such changes, it is essential that the resistance and resilience of ecosystems to global climate change be increased by developing adaptive resource management strategies.

21. Of particular interest are mangroves, which play an integral role in coastal ecosystems and are of valuable ecological, economic, and social importance, both locally and globally. Mangrove ecosystems provide a wide range of products that people use, including timber and fuelwood, finfish and edible crustaceans, and bioactive compounds for tanning and medicinal purposes. They also afford protection to both terrestrial and estuarine systems from dynamic marine processes, preventing erosion and chaotic mixing and providing coastal communities substantial protection from tropical storms.

22. Globally, mangrove systems have been degraded and destroyed and as a result, coastal communities are losing the natural resources on which they depend. Key threats to mangroves include overharvest for timber, clearing of mangroves for agriculture and aquaculture, coastal development, and pollution. Climate change will magnify the effects of many of these threats, and mangrove forests are predicted to be among the first ecosystems to be strongly affected by the rise in sea level caused by climate change (Ellison and Farnsworth 1997[1]). Loss of these buffering systems due to climate change and other causes precludes any protection they might afford, and may have significant environmental, social, and economic consequences.

23. The three project countries (Cameroon, Tanzania, and Fiji) are particularly vulnerable to the effects of climate change not only due to physical and geographic characteristics, but also to lack of institutional capacity. Yet, these countries also typically possess rich biological diversity and other ecological resources of national, regional, and global value. The Gulf of Guinea contains Africa's most extensive mangroves. The area, however, is currently under high stress from urbanization, industrialization, agriculture, and timber and petroleum exploitation around the Gulf coast. West and Central African low-lying lagoonal coasts are susceptible to erosion and hence are threatened by sea level rise (SLR), particularly because most of the countries in this area have rapidly expanding cities on the coast. While there have been several initiatives focusing on mangrove health in the past decade, there is not yet a coherent strategy for climate change adaptation aimed at mangroves in Cameroon.

[1] Ellison and Farnsworth 1997

24. The East African mangroves are considered among the most threatened habitats in the world, with charcoal and timber industries, urban growth pressures, and mounting pollution problems compounding climate change impacts. The Rufiji-Mafia Complex in Tanzania has the largest single block of mangrove forest in East Africa (53 km^2), and there are extensive fringing reefs and patch reefs, as well as seagrass and algal beds. There is a major concern that sea-level rise will damage coral reefs, mangroves and wetlands within the Eastern Africa Marine Ecoregion (EAME).

25. The Republic of Fiji is an archipelago of more than 300 islands, providing ample coastline for mangrove forests and inshore reefs. Fiji has the third largest mangrove area in the Pacific Island region. Mangroves are considered an important component of the foreshore structure, and are increasingly recognized by local communities as providing critical coastline stability. Climatic variation across the larger islands in Fiji influences mangrove distribution and ecology, and different locations are expected to experience distinct effects of climate change.

26. Increasing ecosystem resistance and resilience to environmental change would enhance or protect the system's natural ability to respond to such change. This requires "healthy" and intact systems as a starting point to withstand the negative impacts of climate change. Despite the importance of coastal ecosystems, there have been no climate change vulnerability assessments and adaptation projects with a joint focus on sustaining biodiversity of mangroves, which is due primarily to weak individual and institutional capacity.

27. The project intended to address this weakness in capacity through the development of guidelines and best practices for vulnerability assessment and adaptation strategies and strengthening the capacity of practitioners and stakeholders at local, regional, and global levels in critical aspects of climate change adaptation.

B. The Project

Goal and Objectives

28. According to the project document, the goal of the Coastal Resilience Project was to ensure the long-term integrity of globally significant ecosystems by increasing resistance and resilience to climate change. Within this goal, the objective was to build and strengthen the capacity of conservation practitioners to promote effective vulnerability assessment and climate change adaptation projects and policies. A key activity to achieve this objective was the development of a generalizable methodology for vulnerability assessment and adaptation. The project focused on regions and ecosystems that are highly vulnerable to climate change.

29. During the second year of the project, the goal, objective, and the original log frame were revised. The revised goal was re-stated as *Improved management of mangrove ecosystems to climate change impacts*, which shifted the focus to solely mangroves. In addition, two objectives were introduced:

i. Improve guidelines for managing mangrove ecosystems vulnerable to climate change; and
ii. Strengthen capacity of local, regional, and global conservation practitioners in critical aspects of climate change adaptation (which is similar to the original, single objective).

30. In the revised log frame, the number of outcomes was reduced from four to two and number of outputs from eleven to five. The revised outcomes and outputs are presented in Table 1.

Table 1. Revised Project Outcomes and Outputs

Outcomes	Outputs
1. Best practices are available for conducting vulnerability assessments and implementing adaptation strategies for mangrove ecosystems	1.1.1: Vulnerability of mangrove ecosystems in three countries assessed 1.1.2: Adaptation strategies developed and implemented in each country 1.1.3: Project best practices developed and available in an accessible form
2. Conservation stakeholders at local, regional, and global levels applying new skills in climate change adaptation	2.1.1: Local stakeholders in three pilot countries are better equipped to respond to climate change impacts 2.1.2: Regional and global stakeholders use project's new guidelines

Intervention Areas and Target Groups

31. To achieve the goal of developing generalizable methods for adaptation of mangrove-coral reef systems around the world, the project proponents selected three globally significant regions for development and testing of the methods: Central Africa, East Africa, and the South Pacific. Three countries were selected within each region based on a number of criteria: the presence of mangrove forests with globally significant biodiversity as reflected in the World Wildlife Fund (WWF) Global 200 Ecoregions list; their level of vulnerability to climate change; the degree of national interest and support; and by the presence of WWF offices to coordinate the initiative. Criteria for site selection within each country were developed through stakeholder consultations during the PDF-A phase. In all project sites, coastal communities rely heavily on mangroves for fuel, food, timber, and other services. Country selection was also based on support for the project from national governments and local NGOs. This support was expressed during consultations in the PDF-A phase and through formal letters of endorsement from the governments.

32. While the geographic area of intervention was the three countries, it was expected that the methodology to be developed would be applicable to similar systems regionally and globally. The project targeted multiple stakeholder groups in each of the three countries, including government representatives, academic and non-profit organizations, and local communities. Apart from GEF, UNEP, and WWF, the key stakeholders identified during the PDF-A phase were: (a) representatives of local, state, and national governments and resource management agencies who are responsible for the long-term health of each country's environment; (b) representatives of local and international NGOs which have an interest in climate change, mangroves, or coral reefs; (c) members of local and regional academic institutions and research groups who have interest, experience, and expertise with

regard to climate change, mangroves, or corals in each country; and (d) community members who depend on the ecosystems on which this project focused.

Milestones in Design

33. The Coastal Resilience Project was preceded by a PDF-A stage, which was approved in October 2003 with GEF support of US$25,000. Under the PDF-A, literature reviews were undertaken, profiling the state of knowledge of both climate- and non-climate related stressors on mangroves and associated systems in Cameroon, Fiji, and Tanzania. Consultations were held with the government and key stakeholders in each participating country to refine the proposal, select specific sites, and seek country endorsement. During stakeholder meetings financed by the PDF-A, several potential sites were identified and prioritized and participants discussed possible adaptation field trials.

34. The project was approved by the GEF Chief Executive Officer on 20 September 2005, and subsequently signed by UNEP on 17 May 2006 and by WWF US on 05 November 2006.

Implementation and Completion

35. The project was scheduled to start in May 2006 and be completed by April 2009, with a duration of 36 months. In November 2005, a four-day inception meeting was held in Tanzania and attended by representatives from WWF offices in the three countries and from WWF US, as well as by collaborators from the University of Dar es Salaam and the Coral Reef Degradation in the Indian Ocean Programme. UNEP was not present at this meeting. The first Global Advisory Group (GAG) and Steering Committee meetings were held in July 2008 in Tanzania. Subsequent Steering Committee meetings were convened in June 2009 and October 2010 and two Project Steering Committee teleconferences were held in February and May 2009. The project Chief Scientist was hired in 2008 and roles and responsibilities of the Global Coordinator and Chief Scientist better defined.

36. In October 2008, the project was revised with a new completion date of June 2010 to enable all project countries to complete three full seasons of monitoring needed to provide a solid baseline and refine the monitoring methodology. Subsequently, UNEP approved another no-cost extension to December 2010. This was requested by WWF to facilitate the synthesis of country experiences and the development of the generalizable methodology, explore opportunities for adoption of the methodology by new countries and partners; scaling up project activities to the regional level; and incorporating project results into other venues.

37. The Mid-term Review (MTR) was conducted from February to April 2009. Operational/management concerns were raised by the MTR and requested by UNEP to be addressed, including through designation of a more experienced Project Manager/Global Coordinator at WWF US; a formal increase of involvement by the Chief Scientist; expanded co-financing and partnerships; and organization of a project team meeting in Cameroon in 2009.

38. This evaluation took account of available information on the status and completion of the project as of December 2010.

Implementation Arrangements and Main Partners

39. The project was implemented by UNEP/GEF (Nairobi) and executed by World Wildlife Fund of the United States of America (WWF US). UNEP/GEF as the implementing agency

was responsible for overall project supervision to ensure consistency with GEF and UNEP policies and procedures. UNEP was also responsible for approving possible revisions and approving the substantive and technical reports produced in accordance with the schedule of work. As listed in the project document, the national lead agencies involved in project implementation were: Tanzania: WWF Tanzania Programme Office, WWF-East Africa Regional Programme Office (EARPO) and EAME National Committee for Tanzania; Fiji: WWF Fiji and WWF South Pacific in Fiji; and Cameroon: WWF Cameroon.

40. A project coordinator with WWF's Forest Programme coordinated and implemented activities in collaboration with WWF's Climate Change Programme and also with regional and national WWF offices and other WWF partners in the project countries. A WWF coordinator was appointed in each country and was expected to consult with representatives of national and local governments, NGOs, academic institutions and other relevant stakeholders to ensure that the project matched that country's national plans and programmes and incorporated identified priority concerns.

41. The main financial partners were the GEF and WWF US.

Financing

42. Financing and co-financing of the project (expected in the project document and actual) are presented in Table 2.

Table 2. Project financing and co-financing

Component	**Amount (US$) in pro doc**	**Actual (US$)**
GEF Trust Fund	975,000	975,000
PDF-A	25,000	25,000
Sub-total	*1,000,000*	*1,000,000*
WWF-US	775,000	1,089,431
WCS	225,000	0
Sub-total	*1,000,000*	*1,089,431*
Total	**2,000,000**	**2,089,431**

43. GEF support amounted to US$1 million, of which $25,000 was used in the PDF-A phase. Pledged co-financing from WWF US was US$775,000 and from Wetlands International Conservation Society (WCS) of Fiji US$225,000. During the course of the project, the co-financing from the WCS did not materialize, which was attributed to expected donor funds no longer being available because the projects had already been completed by the time the MSP got under way. Total co-financing from WWF US was reported to UNEP as $1,089,431, as cash contribution. The total cost of the project with GEF funds and WWF US co-financing was US$2,089,431. Following completion of the project, Hewlett-Packard provided financial support to WWF US for publication of the manual. This, however, was not included as part of the co-financing reported to UNEP.

Modifications to design before or during Implementation

44. The project log frame was substantially revised in the second year of implementation. Discussions with the former global Project Coordinator and Chief Scientist clarified the rationale for the revision, which included the need to focus on what was realistically

achievable based on the work that was already underway in the three countries and within the remaining time frame. The revision streamlined the project, reducing its scope to focus on only mangrove ecosystems (rather than mangroves and associated coastal ecosystems) and the impacts of sea level rise. An important decision to produce a manual based on the project results was taken at the 2009 Cameroon meeting.

45. As mentioned by the former Global Project Coordinator to the TE consultant, the revised log frame was unofficially approved by the UNEP Task Manager. The project workplan was also subsequently revised. A cleaner, scaled-down version of the project workplan was developed by previous coordinators from UNEP and WWF US but was never formally adopted for purposes of monitoring the project. At the 2009 meeting in Cameroon, all parties verbally agreed to this workplan and to use it to track progress at the global level in terms of results and outcomes. However, country coordinators were requested to report against the original workplan in the following semi-annual reports, as they had done in the past

46. There was one formal revision to the project document in 2008, which extended the completion date to June 2010 and re-scheduled expenditures accordingly.

C. The Evaluation

Purpose

47. The terminal evaluation (TE) was initiated and commissioned by the UNEP Evaluation Office, Nairobi, Kenya. In line with the UNEP Evaluation Policy[2], the UNEP Evaluation Manual[3] and the Guidelines for GEF Agencies in Conducting Terminal Evaluations[4], the terminal evaluation of the Project "*Coastal Resilience to Climate Change: Developing a Generalizable Method for Assessing Vulnerability and Adaptation of Mangroves and Associated Ecosystems*"[5] was undertaken at the end of the project to assess project performance (in terms of relevance, effectiveness, and efficiency), and determine outcomes and impacts (actual and potential) stemming from the project, including their sustainability.

48. The evaluation has two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among UNEP, governments, international and national executing agencies, the GEF and their partners.

Criteria and Key Questions

49. A set of key questions for the evaluation are identified in the evaluation terms of reference (TORs). These questions are based on the original log frame:

- How successful was the project in building and strengthening the capacity of conservation practitioners to promote effective vulnerability assessment and climate change adaptation projects and policies?
- Has the project enhanced capacity in participating countries to perform effective climate change vulnerability assessments?

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2 http://www.unep.org/eou/StandardsPolicyandPractices/UNEPEvaluationPolicy/tabid/3050/language/en-US/Default.aspx

3 http://www.unep.org/eou/StandardsPolicyandPractices/UNEPEvaluationManual/tabid/2314/language/en-US/Default.aspx

4 http://www.thegef.org/gef/sites/thegef.org/files/documents/TE_guidelines7-31.pdf

5 Hereinafter referred to as 'Coastal Resilience Project' or 'the Project'

- To what extent has the project achieved improved policy and adaptation measures that reflect the interests and needs of a wide range of stakeholders at the national, regional, and international levels?
- How successful was the project in setting up generic guidelines for up-scaling and replication of the lessons learnt from the project's experience?
- Has the project succeeded in developing effective vulnerability assessment and adaptation planning methods that are replicable and used in other countries and in differing ecosystems?
- How successful was the project in strengthening opportunities for knowledge sharing and activities related to climate change adaptation at the national, regional and international levels?

50. The above questions remained pertinent to the revised log frame (Annex 1), which the UNEP Evaluation Office agreed would be used for the TE.

51. A specific list of review criteria for the terminal evaluation is given in the TORs and used to structure this report. Information used in the wider evaluation was evidence-based and efforts were made to triangulate information and opinions from interviews. An analytical tool used in the evaluation was the Review of Outcomes to Impacts (ROtI) tool, which is presented in Part II of the evaluation report and used to inform analyses on sustainability and stakeholder engagement.

52. The Mid-term Review (MTR), which was conducted in 2009, made a number of recommendations that helped to greatly improve project performance. Information in the review is taken into account in the TE report where relevant, but the TE focuses on the performance and achievements of the project in the period following the MTR.

Timeframe, data collection and limitations of the evaluation

53. The terminal evaluation was conducted by a team of two consultants[6] between November 2012 and February 2013. The evaluation timeline and itinerary are provided in Annex 2.

54. The findings of the evaluation were based on the following:

- A desk review of project documents and reports (See Annexes 3 and 4.1).

- Interviews with the former UNEP Project Task Manager, Project Fund Management Officer and relevant staff of the UNEP Evaluation Office in Nairobi (lead consultant).

- Interviews with the Global Coordinator (lead consultant), WWF coordinators and project executants in Cameroon and Tanzania (lead consultant) and Fiji (supporting consultant).

- Interviews with the Chief Scientist and other technical experts (lead and supporting consultants).

- Group meetings with local communities in the three project countries.

[6]The lead consultant was responsible for the overall evaluation and main report, and evaluation in Cameroon and Tanzania; and the supporting consultant was responsible for the evaluation in Fiji and the Fiji Country Report.

- Face-to-face interviews and telephone interviews with other stakeholders, including users of the project results in Government agencies and relevant organizations (lead and supporting consultants).

- Site visits in Cameroon and Tanzania (lead consultant) and Fiji (supporting consultant).

55. The list of persons interviewed is provided in Annex 5 of the main report and the Fiji country report (Annex 6 of the main report).

56. In terms of limitations to the evaluation, the TE was undertaken nearly two years following project completion. By this time, the Global Coordinator as well as the Cameroon and Fiji Coordinators had left WWF. The evaluation team was fortunate to be able to interview these persons (the Global Coordinator by skype and Cameroon and Fiji Coordinators in person), although some details had been forgotten.

57. The first draft of the report was circulated for review to relevant persons. Comments and responses from the evaluators are provided at the end of this report.

Part II. Project Performance and Impact

58. Part II of the evaluation report addresses the performance and impact of the project, based on four main evaluation criteria – attainment of objectives and planned results, sustainability and catalytic role, processes affecting attainment of project results, and complementarities with the UNEP Medium Term Strategy and Programme of Work. The Fiji report (Annex 6) followed the same set of criteria and the evaluation results were incorporated in the main report.

A. Attainment of Objectives and Planned Results

Achievement of Outputs and Activities

59. Evaluation of the achievement of outputs and activities is based on the revised log frame. All activities and outputs were necessary and appropriate, and formed a series of logical, sequential steps towards achievement of the project outcomes and objectives. Outputs were produced in a timely manner (following the initial delays) and culminated in the preparation of the generalizable methodology that is described in the methods manual. Achievements surpassed the expectations expressed in the MTR.

60. Interviews with country coordinators and others revealed that initially, there was little technical guidance from WWF US on how to go about doing vulnerability assessments and developing adaptation strategies as well as weak coordination of activities (discussed in Section C2). As a consequence, in each country the project executants basically worked independently of their counterparts in the other countries. It was left to the coordinators and project executants to interpret what was required and to develop the vulnerability assessments and design adaptation strategies. However, this changed when the Chief Scientist was engaged in 2008; she provided much needed scientific guidance in the three countries and helped to guide the activities. Nevertheless, the variation in the different approaches to vulnerability assessment in the three countries worked well for the development of the generalizable methodology. As the Chief Scientist explained, this variation contributed to a rigorous testing of the generalizable methodology.

61. A summary of the achievement of project outputs and activities is presented in Annex 7. In the following the achievement of project outputs within the two components (Outcomes) is discussed.

62. **Outcome 1: Best practices are available for conducting vulnerability assessments and implementing adaptation strategies for mangrove ecosystems**

63. *Output 1.1.1: Vulnerability of mangrove ecosystems in three countries assessed*: All the activities envisaged for this output were completed. Working with local communities, WWF offices in the three countries developed a vulnerability assessment methodology designed to identify what aspects of mangrove ecosystem are already experiencing climate change impacts and what aspects are most vulnerable to future impacts. Each vulnerability assessment component was carried out using techniques that varied between the countries, based on the level of stakeholder support and site differences. This variation contributed to a rigorous testing of the generalizable methodology that was subsequently developed. In addition to the methods manual, a number of other technical reports were produced and presentations made at regional and international conferences based on the work undertaken in the three countries (Annexes 4.1 and 4.2).

64. In Cameroon, field testing of the vulnerability assessment methodology was carried out in three sites (the Campo-Ntem, Douala-Edea and Rio Del Rey Estuaries) with the involvement of local non-governmental organizations (NGOs), community based organizations (CBOs), and other stakeholders. WWF worked closely with the Cameroon Wetlands Conservation Society (CWCS) and a researcher at the University of Buea to produce a consolidated vulnerability assessment report. The TE consultant visited the Campo-Ntem Estuary and some of the monitoring sites. Key vulnerability assessment components are reported in Ellison and Strickland (2010), Ajonina et al. (2011), and Ellison and Zouh (2012).

65. In Fiji, the vulnerability assessment methodology was developed and field tested at three sites (Tikina Wai, Kubulau, and Verata). The vulnerability assessment used available data and information on coastal ecosystems within WWF and WCS and meteorology data from the Fiji Meteorological Agency (Ellison 2004 and 2010) as well as assessments of mangrove forests and adjacent ecosystems. The TE supporting consultant visited the Tikina Wai demonstration site. The vulnerability assessment report has been published (Fiu et al. 2010).

66. In Tanzania, the project focused its effort within the Rufiji Delta. A wide portfolio of technical and field studies was conducted, which informed an understanding of the vulnerability to climate change of mangrove ecosystems in the Rufiji Delta, and associated mangrove and corals reef habitats in Mafia and Kilwa. The vulnerability assessment report for Tanzania was prepared by Rubens et al. (2010).

67. The results of the vulnerability assessment studies conducted in the three countries were synthesized in the methods manual (Ellison 2012).

68. *Output 1.1.2 Adaptation strategies developed and implemented in each country:* All activities were completed for this output. Initial adaptation strategies were developed based on results from the vulnerability assessments and stakeholder workshops. A range of site-specific adaptation trials were subsequently implemented in Cameroon, Fiji, and Tanzania, including “no-regrets” activities such as the designation of strategic protected areas, improved resource use efficiency, and rehabilitation of degraded areas with “climate-smart” mangrove species (tolerant to high salinity). Some examples of adaptation strategies in each of the three countries are:

69. In Cameroon, WWF and CWCS helped to strengthen the gazettement process for the conversion of the Douala-Edea Reserve into a Marine and Terrestrial National Park. WWF also helped the Government of Cameroon in securing the designation of the Rio del Rey Estuary (another project site) as a RAMSAR site of international importance in May 2010. The TE consultant visited the Campo-Ntem mangrove and was shown some of the sites that were replanted with climate-smart species. A mangrove nursery has been established in Douala to supply seedlings for replanting.

70. Two adaptation strategies were developed through stakeholder consultations and adopted in Fiji – Strengthening the Locally Managed Marine Areas (LMMA) and establishing marine protected areas (MPAs) and livelihood diversification initiatives (ecotourism). Planting of climate-smart species of mangroves was field-tested only. Community-endorsed networks of protected areas that include mangroves, seagrass beds, coral reefs and forest/upland areas were established in the two larger sites (Kubulau and Tikina Wai). Tikina Wai has become a demonstration site, where the local community is developing an eco-tour of its adjacent mangrove zone. The TE consultant visited the Tikina Wai pilot site and observed the community-based livelihood activity surrounding the salt-panning adjacent to the mangrove forest and learned more about this livelihood as an attraction for students and tourists and an opportunity for increasing public awareness. Monitoring of sediment deposition in the mangrove forest was continuing in Tikina Wai.

71. In Tanzania, a key activity was restoring degraded, upper zone mangrove habitat through collaboration with local communities. Sixty-three hectares of degraded mangrove habitat and rice farms (converted mangroves) were replanted with mangrove seedlings. Surveillance and monitoring of planted areas was carried out by local communities and the Forestry and Beekeeping Division (a project partner). In November 2012, the TE consultant visited the Rufiji Delta, and observed that saplings were still thriving in the sites visited (but some uprooted saplings and chopped branches bore testimony to sabotage from disgruntled villagers).

72. The adaptation strategies developed in the three countries are included in the methods manual as a range of lessons and case studies that will greatly assist the countries in adaptation planning.

73. *Output 1.1.3: Project best practices developed and available in an accessible form*. All the activities were completed for this output, which represents the culmination of the activities undertaken for the first two outputs previously described, with production of the methods manual.

74. The manual contains step by step guidelines for assessing climate change vulnerability in mangrove ecosystems. It was obvious that a substantial amount of work went into its preparation. This manual was reviewed by the TE consultants and found to be of a very high technical quality and presented in a user-friendly format. It brings together a wealth of on-the-ground experience and scientific knowledge. Comments on the draft manual by peer reviewers (forwarded to the TE consultants by the Chief Scientist) were very positive, both in terms of the scientific credibility and usefulness of the manual.

75. The project guidelines met international standards for vulnerability assessment and adaptation, as demonstrated by the publication of a number of scientific papers in peer-reviewed journals (Annex 4.1). In addition, several technical reports on a range of topics were also produced, and found to be of high quality by the TE team (Annex 4.1).

76. A summary of the achievement of the project outputs and activities is provided in Annex 7. Based on the two log frame indicators, this outcome was achieved, with the completion of vulnerability assessments in pilot sites and publication of a set of best

practices and guidelines for vulnerability assessment and adaptation strategies. Nevertheless, the source of verification of one of the two indicators for this Outcome (vulnerability of pilot areas in the three countries) - *Second vulnerability assessment shows reduction*- was not realistic, considering that the project timeframe of three years was insufficient to detect any significant changes in mangrove vulnerability.

77. **Outcome 2: Conservation stakeholders at local, regional, and global levels applying new skills in climate change adaptation**

78. Output 2.2.1: Local stakeholders in the three pilot countries are better equipped to respond to climate change impacts

79. This output relates to the capacity building component of the project. Activities focused on training, awareness-raising, facilitating collaboration among partners and stakeholders, and showcasing the project results. Interviews with local stakeholders during conduct of the TE revealed a significant level of understanding of vulnerability assessment and climate change adaptation, including technical aspects, which they claim did not exist prior to the project. The TE team learned that at the start of the project, project partners in the countries did not know how to conduct vulnerability assessments and it was a learning-by-doing process.

80. In all three project countries, WWF in collaboration with local partners convened a number of awareness-raising fora as well as training and capacity building workshops for stakeholders at various levels (villagers, NGOs, CBOs, academic experts, and government officials). Awareness-raising is discussed further in Part C3. In Cameroon, about 1,300 persons, among whom were members of ten local organizations (all CMN members), were trained in vulnerability assessment methodologies through training workshops. Six organizations were actively involved in monitoring a set of nine sedimentation, tidal, and habitat stations.

81. The project enhanced awareness and capacity among a wide sector of society, including district officers, villagers, government officers from agencies responsible for the environment, fisheries, lands, tourism, and conservation practitioners in Fiji. Over 20 mangrove and ecosystem health monitors were trained at the village level in Fiji. Key messages from the vulnerability assessment process have been endorsed by the National Climate Change Country Team (NCCCT), the main platform to advise the government on policies relating to climate change and disaster risk management. The project also strengthened the knowledge and the capacity of provincial authorities to improve development planning near threatened mangrove areas. In Tanzania, 22 village awareness meetings were held on climate change and 40 villagers were trained and participated in mangrove surveys and mangrove replanting in the Rufiji Delta.

82. It was evident that the project helped executing partners and stakeholders to be better equipped for vulnerability assessment and adaptation. For instance, the Tanzanian project coordinator revealed that he had to learn to do vulnerability assessments, and with the knowledge and capacity obtained through the project, he has been able to contribute to the RUMAKI Seascape Programme. In Tanzania, there was a previous initiative on mangrove replanting by the Forestry and Beekeeping Division for mangrove restoration. The Coastal Resilience Project contributed to incorporation of climate change consideration into this initiative, with selection of climate-smart species and sites that are appropriate in relation to climate change. In Cameroon, mangrove monitoring activities were ongoing by the CWCS for about 10 years prior to the start of this project, but were not related to climate change. These activities are continuing but with climate change considerations. In Fiji, the former Project Coordinator shares her knowledge and experience in the Vatutavui Mangrove Reforestation Project of the Institute of Applied Sciences, University of South Pacific.

83. While no baseline and end of project surveys were undertaken to assess awareness, discussions during the TE in the three countries revealed that the project had succeeded in raising considerable awareness among stakeholders about climate change vulnerability and adaptation. In each country a number of awareness-raising events were convened with local stakeholders and training workshops in vulnerability assessment and adaptation held. This and the involvement of local stakeholders in project execution (e.g., monitoring and mangrove replanting) also increased their knowledge on these issues. Further, the awareness raised allowed local communities to understand some of the phenomena that they had previously observed and the link with changes in climate and sea level. For example, some community members in the Rufiji Delta reported changes in sea level and mangrove vegetation in localized areas, but until the time of the project, were not aware of climate change and adaptation issues. In fact, they expressed concern about the impacts of climate change on their livelihoods and personal safety and showed willingness to help in the implementation of climate change adaptation strategies.

84. Output 2.2.2: Regional and global stakeholders use project's new guidelines

85. During the life of the project a number of regional and global stakeholders expressed interest in the guidelines, for example, Mangroves for the Future (MFF) and the Secretariat of the Pacific Regional Environment Program (SPREP), but the TE team was unable to verify the extent to which the guidelines were actually being used by these stakeholders. On the other hand, the TE team learned of limited use of the guidelines through the efforts of individuals, whereby some elements of the guidelines were incorporated in regional initiatives. For example, the Tanzania WWF coordinator used the project guidelines in the RUMAKI Seascape Programme, Regional East Africa Conservation Initiative (training in Kenya and Tanzania using the manual), and regional mangrove vulnerability assessment for the Western Indian Ocean. Permanent sample plots in Cameroon (some of which were established under the project as an extension of CWCS endeavours) served as part of Cameroon's contribution to the current CWCS-UNEP project for evaluation of carbon pools in Central Africa (Cameroon, Gabon, Congo, and Democratic Republic of Congo).

86. The best practices learned from the project activities in Fiji were shared through local, regional, and global platforms (e.g., Ecosystems and Livelihoods Adaptation Network and the Mangroves for the Future Initiative of IUCN). In November 2010, SPREP organized a mangrove monitoring training workshop for countries and territories of the Pacific Islands region in Fiji. The project Fiji coordinator and Chief Scientist were invited to provide training on the Forest Assessment of Mangroves and Sedimentation Rates techniques to country participants, using the Tikina Wai project site as a case study. Several countries such as the Marshall Islands have since employed the forest assessment techniques at key mangrove sites within their own countries. SPREP is finalizing a Mangrove Monitoring Manual, which includes methods and case studies from the WWF project's findings. MFF has used the guidelines in their training programme in 12 countries (including Malaysia, Thailand, and Vietnam). See also Section B on Sustainability and Replicability and Catalytic Role.

87. In 2012, the Chief Scientist received email messages (which she shared with the TE team) from practitioners in the OMCAR Foundation (Tamil Nadu, India) and The Nature Conservancy (Seattle, Washington) informing that they were using the manual in their work.

88. There is great potential for the project guidelines to be more widely used at the regional and global levels. If Outcome 2 is to be met in any significant way, the manual needs to be more widely disseminated and promoted at national, regional, and global levels. The former Global Coordinator informed the TE consultant that the manual was widely distributed but there was no specific programme in place to promote the use of the

guidelines. The TE recognizes that financial resources would be needed for this, and WWF and UNEP should identify opportunities through ongoing and planned initiatives.

89. The overall rating on delivery of activities and outputs is **Satisfactory**.

Relevance

90. The project's focus on climate change adaptation of mangrove ecosystems was relevant to UNEP's programmatic objectives and expected accomplishments under its Climate Change and Ecosystem Management cross-cutting priorities of its Medium-term Strategy 2010–2013. The capacity building-objective was consistent with the Bali Strategic Plan for Technology Support and Capacity-building.

91. The project's objectives remained pertinent to the GEF Biodiversity Focal Area and the GEF Operational Programme[7] (OP) 2, Coastal, Marine, and Freshwater Ecosystems, the objective of which is "*the conservation and sustainable use of the biological resources in coastal, marine, and freshwater ecosystems*." The OP makes provisions for the needs of tropical island ecosystems, which was addressed in the project by inclusion of Fiji.

92. Developing adaptation strategies that would increase sustainability of mangrove ecosystems (under both protected and non-protected status) was responsive to emerging issues under GEF Strategic Priority (SP) I (Catalyzing Sustainability of Protected Areas). In addition, the generation of best practices and dissemination to stakeholders in order to promote adoption and replication in other sites was consistent with SP 4 (Generation and Dissemination of Best Practices). Further, the project also serves as a model for GEF's new goal of incorporating climate change adaptation into all OPs

93. Cameroon, Fiji, and Tanzania are parties to two relevant global environmental conventions - the United Nations Framework Convention on Climate Change (UNFCCC) and Convention on Biological Diversity (CBD) - and have identified coastal ecosystems to be of priority within their National Biodiversity Strategic Action Plans under the CBD.

The overall rating on relevance is **highly satisfactory**.

Effectiveness

94. The evaluation of effectiveness is based on the extent to which the two (revised) objectives were achieved:

i. Improve guidelines for managing mangrove ecosystems vulnerable to climate change; and

ii. Strengthen capacity of local, regional, and global conservation practitioners in critical aspects of climate change adaptation.

Objective I: Improve guidelines for managing mangrove ecosystems vulnerable to climate change

95. Overall this objective was achieved, based on the log frame indicator (Practical and effective guidelines for assessing the vulnerability of and adapting mangrove ecosystems are available internationally in English and French, although the guidelines were not produced in French). The project tested mangrove vulnerability assessment methodologies

[7] Under GEF 3. OPs have been superseded by GEF Focal Area Strategies (GEF 4 and 5) http://www.thegef.org/gef/GEF-3_BIO_operational_program

and adaptation strategies in the three countries. The findings of these pilots guided the development of the generalized methodology.

96. As previously discussed, the guidelines were compiled and presented in the methods manual: "*Climate Change Vulnerability Assessment and Adaptation Planning for Mangrove Systems*"[8]. The manual contains a set of eight methods for assessing vulnerability in mangrove ecosystems and developing adaptation strategies to assist conservation practitioners around the world. The methods are applicable to mangroves in different geomorphic settings (riverine, deltaic, fringe, lagoonal, and low islands).

97. A number of factors contributed to the successful achievement of this objective, although some challenges were encountered in terms of overall coordination, communication, and limited technical guidance in the early stages (as revealed in the MTR and interviews with project participants. One of the difficulties in the initial stages, however, worked to the benefit of the guidelines - activities in the countries were conducted largely independently, and in Cameroon and Tanzania with limited technical and intellectual guidance until the Chief Scientist was hired. The Chief Scientist was in Suva in early 2007 when the mangrove work was starting and provided advice on techniques in Fiji. There was different understanding of what was required in the countries. According to the Chief Scientist, this was the 'perfect unplanned experiment' that generated a diversity of vulnerability assessment methodologies, which contributed to a rigorous testing of the generalizable methodology and ultimately resulted in a more robust methodology.

98. It was recognized early in the project that the timeframe was too short for detection of any significant changes in sea level or in the status of mangroves in the three countries. Project executants, however, found innovative and effective solutions to this dilemma by using available techniques and long term datasets, for example, GIS remote-sensing surveys utilizing satellite images collected over past decades, stratigraphy and pollen analysis, decades-long time series of climatic and ecological monitoring data and tide gauge records.

99. The project also benefited from activities undertaken through initiatives of other organizations that had begun prior to implementation of the project. In all three countries, ongoing monitoring and conservation activities, which were not at the time necessarily related to climate change vulnerability and adaptation, contributed a wealth of data, information, and experiences. For example, mangrove monitoring in Cameroon project sites by the CWCS; and profiling of mangrove forests and adjacent ecosystems in Tikina Wai towards the development of the Fiji Islands Marine Ecoregion strategy and scientific data collected by WCS for the management of the mangrove forests in Verata.

100. Following the MTR (which gave an overall rating of Moderately Unsatisfactory and expressed serious doubts that the generalizable methodology would be produced within the remaining time of the project), a new Global Project Coordinator was appointed and Chief Scientist fully engaged. Based on interviews with project participants in the three countries and the UNEP Task Manager as well as information in the Project Implementation Review (PIR) reports and progress reports, it was clear that the new Global Coordinator and the close involvement of the Chief Scientist including 'on the ground' within the three countries were instrumental in turning the project around and in providing the much-needed coordination, management, and technical guidance that ultimately contributed to the achievement of this objective.

[8]Ellison, J. C. (2012). Climate Change Vulnerability Assessment and Adaptation Planning for Mangrove Systems. Washington, DC: World Wildlife Fund (WWF).

101. The Global Coordinator organized regular tele-conferences, as well as four team meetings (Tanzania, 2007, 2008; Cameroon, 2009; Fiji, 2010), in which country coordinators were able to assess progress, discuss problems, and exchange information about other methodologies and lessons learned. The interest and dedication displayed by the project coordinators and executants, and who worked as a team in the three countries, was essential to the achievement of this objective. At the time there was limited in-house capacity within the WWF country offices for some of the technical studies that underpinned the vulnerability assessments, and the project had to rely on a number of highly qualified and competent consultants who were contracted to undertake some of these studies.

102. Another factor that contributed to overall success was the engagement of stakeholders at all levels, including local communities who were actually involved in activities such as monitoring and mangrove replanting. In all three countries, forging of effective partnerships with appropriate existing organizations and agencies (see Part C3) was also instrumental in the achievement of this objective.

103. Adaptive management measures to reorient the focus on solely mangroves and the impact of sea level rise, and revision of the log frame made the expectations more realistic within the time frame and available financial resources. Further, the no cost extension of the project facilitated the global synthesis of the project results and experiences from the three countries to produce the manual. Support for preparation and publication of the manual was provided by WWF US, GEF, UNEP and Hewlett Packard.

104. **Objective 2: Strengthen capacity of local, regional, and global conservation practitioners in critical aspects of climate change adaptation**

105. The project has contributed to strengthening the capacity of conservation practitioners for climate change adaptation, particularly at the local level. The achievement of this objective is discussed based on the indicator in the revised log frame - Practical and effective guidelines are being applied in at least nine countries, including the three participating countries.

106. The project guidelines, including adaptation strategies, were applied in a number of sites in the three countries. As a result of the project, climate change vulnerability and adaptation began to be incorporated in other ongoing and planned programmes and projects in the three countries (See Section B1- Sustainability). For example, in Cameroon, mangrove monitoring by CWCS now incorporates climate change considerations. The Forestry and Beekeeping Division of Tanzania, which had previously carried out mangrove replanting for conservation, is now incorporating climate change adaptation into the replanting programme (e.g., using climate-smart species) and the Tanzania Coastal Management and Conservation Project (USAID/Gov't of Tanzania) has developed integrated coastal management strategies that are being revised to include climate change vulnerability assessment and adaptation, based on the results of the climate change project.

107. Use of the guidelines at the regional and global levels has been sporadic. While the manual was published by WWF, there appears to be limited knowledge about its existence, availability, and use within the WWF network[9]. As the methods manual was being completed, several WWF offices expressed interest in adopting the methodology in new projects. These included WWF Pakistan (a 5-year project on adaptation in the Indus Delta, funded by the European Commission); and WWF offices in Colombia and Madagascar, but the TE was not able to verify if and the extent to which the guidelines were actually being used. In the Philippines, WWF-Philippines is applying similar tools for climate change

[9] There was no mention of the manual on WWF country websites checked by the TE team.

adaptation in 80 km of coastline in Sablayan Municipality, but the extent to which this has been influenced by the MSP is not known. Key components of the vulnerability assessment methodology were tested by a student in Singapore in 2010.

108. The WWF project coordinator in Tanzania informed the TE consultant that the project results have been taken up and continued in other WWF projects, setting the outcomes of the climate change project into a broader context: RUMAKI Seascape project, Regional East Africa Conservation Initiative (training in Kenya and Tanzania using the manual), and regional mangrove vulnerability assessment for the Western Indian Ocean.

109. Outside of the WWF network, the project results have been incorporated into a Mangrove Monitoring Manual produced by SPREP, which includes methods and case studies from the climate change project. Some of the project results have also been incorporated in MFF climate proofing guidelines (Phase 2). In 2012, the Chief Scientist was informed that practitioners in the OMCAR Foundation (Tamil Nadu, India) and The Nature Conservancy (Seattle, Washington) were using the manual in their work.

110. It was evident to the TE team that the project succeeded in strengthening the capacity of partners and of stakeholders at all levels in climate change adaptation, through awareness raising, training, and preparation and dissemination of the guidelines (manual), which is a valuable tool for practitioners. Nevertheless, the project could have had a much bigger impact had there been greater and sustained effort to promote and disseminate the guidelines. The global coordinator informed the TE team that the manual was distributed to several practitioners and organizations and placed on appropriate websites, but there was no coastal specialist at WWF after his departure to follow up on promotion of the manual. Hard copies of the manual were distributed within UNEP to the few people dealing with mangrove issues, but it was not circulated electronically. The Chief Scientist expressed disappointment (See Section B1, Sustainability) that there have been no significant effort to promote and disseminate the guidelines on the part of WWF and UNEP and the limited use that was being made of the guidelines, and indicated her willingness to continue to test the methodology in other countries.

111. Provisions should have been made in the project design for adequate time and financial resources for both development of the generalizable methodology and capacity building at regional and global levels, for example, through a five-year project instead of three years.

112. The overall rating on effectiveness is **satisfactory**. There is no concrete evidence of the extent to which the guidelines were being applied in six additional countries.

Efficiency

113. A number of measures to promote efficiency were identified in the project document and adopted during implementation (e.g., building on projects and programmes of existing agencies; engaging multiple countries to address common problems; developing a generalizable methodology that could be adapted in other countries; and involvement of multiple stakeholder groups including local communities and NGOs).

114. Among the major factors contributing to efficiency were:

i. Appropriate site selection: This was based on a number of filters, including the presence of WWF and other key stakeholders in conservation of mangroves in the three countries; support for the project from national governments and local NGOs; identification of areas with globally significant biodiversity and that are particularly vulnerable to climate change impacts;

ii. Establishment of partnerships with key organizations, agencies, academic and research institutions and local communities for project execution (Part I B) and other formal networks;
iii. Engaging local communities in project activities such as monitoring and replanting;
iv. Building on the past and ongoing programmes of partners and utilization of existing knowledge, methods, and data sets, for example, fifty years of aerial photographs and climate records for over a century from the Meteorology Department in Fiji. In Cameroon, WWF built directly on existing initiatives by NGOs such as CWCS and the Universities of Buea and Douala. As a result, the project was able to take advantage of more than 10 years of previous work in some of its key sites. In Tanzania, the WWF team made use of local knowledge of villagers in the Rufiji Delta;
v. Developing a generalizable methodology: Since there was neither time nor the money for a site-by-site approach to methods development, the project developed a generalizable methodology for vulnerability assessment and adaptation strategies that can be applied in multiple ecological and socio-political contexts. The project worked with a common ecosystem (mangroves) in different ecological contexts and in three different countries. Creating a generalizable methodology reduced the need for countries to create their own individual methodologies;
vi. Revision of the project log frame to focus on only one ecosystem (mangroves) and on one climate change vulnerability factor (sea level rise) streamlined the project and increased efficiency within the available time frame and budget.

115. The cost-efficient measures adopted resulted in the successful completion of the project within budget. The Coastal Resilience Project can be compared with a similar GEF medium size project of the Transboundary Waters Assessment Programme (TWAP) (GEF project ID 3342) in which methodologies for assessment of five types of transboundary water bodies were developed. GEF support to TWAP was US$950,000 and the project was conducted over 22 months. The Coastal Resilience Project, which also aimed to develop a particular methodology, received US$975,000 from GEF and was expected to be conducted over 36 months.

116. The TE team was made aware of a number of factors that reduced efficiency in the early stages. In Cameroon and Tanzania, for example, existing WWF staff members were expected to assume the responsibilities of implementing the project, in addition to their existing responsibilities. No additional staff were hired although consultants were contracted for specific technical tasks. This placed a substantial burden on the staff members in question. Because of delays in project start up and disbursement of funds, project partners were forced to use up co-financing as the start date was postponed.

Timeliness of Execution

117. The project was scheduled to start in May 2006 and be completed by April 2009. In November 2005, a four-day inception meeting was held in Tanzania, but it was not until June 2006 that project funds were received by WWF US. This was attributed by UNEP to mainly delays in finalizing and signing of project agreements between WWF US and the country offices. The Finance Officer at WWF Tanzania was reluctant to sign the project agreement (a necessary step for releasing funds) before receiving formal approval of the budget changes he requested from GEF/UNEP. The Tanzania WWF coordinator informed the TE consultant that initial delays were also caused by difficulty in identifying and mobilizing appropriate people. Tanzania initially lagged behind other sites because staff were overcommitted and there was inadequate communication about scheduling and contracting.

As a result there were some delays in contracting of consultants, which in turn delayed the start of certain activities. In Tanzania, there was a nine month delay before start up activities.

118. During the long delay between the inception workshop and receipt of funds some key players left and others lost momentum. One of the financial repercussions of the delay was the withdrawal of co-financing initially pledged by WCS (Fiji) because the other projects whose inputs were to be counted as co-financing had been completed by the time the Coastal Resilience Project got underway. Activities in Cameroon were delayed in part due to negotiations with partner organization about how much inventory/monitoring could be done with the given budget, and in part because Cameroon was late requesting funds transfer from WWF US so was unable to begin inventory/monitoring prior to the onset of the rainy season.

119. Some disruption was also caused by the departure of the first Global Coordinator in early 2006 and the delay in appointing a new coordinator in September 2006. During the delays in the first year, some activities were undertaken through other ongoing projects in the countries, which (according to the former Task Manager) saved the Coastal Resilience Project as it was able to build on these activities.

120. In July 2008, two years after the scheduled start, the first Global Advisory Group and Steering Committee meetings were held. Year 2008 also saw the official selection of the project Chief Scientist and a clarification of roles and responsibilities of all concerned parties. As a consequence of the initial delays, the project was revised in October 2008 and granted a no-cost extension to June 2010 to enable all project countries to complete three full seasons of monitoring needed to provide a solid baseline and refine the monitoring methodology. Later on in the project, UNEP approved a final no-cost extension to December 2010. This was requested by WWF to facilitate synthesis of country experiences and the development of the generalizable methodology, to explore opportunities for adoption of the methodology by new countries and partners, scale up project activities to the regional level, and incorporate project results into other sites.

121. Despite the initial delays, project management and performance significantly improved following the MTR, when a new Global Coordinator was assigned and the Chief Scientist given a bigger role in the project.

122. The overall rating on efficiency is **moderately satisfactory**, based on cost effectiveness but some problems in terms of timeliness of execution.

Review of Outcomes to Impacts

123. Progress made towards achievement of project impacts is examined using a Review of Outcomes to Impacts (ROtI) analysis. The exercise identifies what are termed “intermediate states”, which are the transitional conditions between the project’s immediate outcomes and the intended impact (global environmental benefits or GEBs) and which are necessary conditions for the achievement of the intended impacts. It should then theoretically be possible to determine the Impact Drivers (significant factors that if present are expected to contribute to the realization of the intended impacts and can be influenced by the project, its partners and stakeholders) and the Assumptions (significant factors that if present are expected to contribute to the realization of the intended impacts but are largely beyond the control of the project). Based upon this analysis it should be possible to recognize if a project has produced sufficient changes and to identify the intermediate states, that is, whether what the project has put in place will have a lasting impact.

124. The theory of change is based on the premise that increased capacity of practitioners at all levels (i.e., availability of the guidelines and acquired skills) and application of this capacity will improve the management of mangrove ecosystems, thus increasing resistance and resilience to climate change impacts. Based on this premise, the intended environmental impact can be stated in general terms as an increase in mangrove ecosystem resistance and resilience to climate change impacts.

125. As illustrated in Figure 1, important drivers towards project impact include strengthened capacity for vulnerability assessment and adaptation, increased public awareness, mainstreaming of climate change adaptation into policy and decision making, and identification of alternate livelihoods for mangrove-dependent communities. Nevertheless, the project's outcomes (improved guidelines and application of new skills) in themselves are not sufficient to achieve the GEBs on any significant scale. The likelihood that the GEBs will be achieved is based on a number of assumptions including the availability of adequate human and financial resources for replicating and upscaling the project outcomes, mainstreaming climate change considerations in decision-making for mangrove conservation, improved monitoring and enforcement, etc. (Figure 1). Other key assumptions are that no large scale climate related extreme events/disasters would occur to wipe out the benefits and that other human pressures on the ecosystem are also addressed *(*See also Section B: Sustainability*).* This implies that climate change adaptation should be integrated into an overall strategy for mangrove management. Whether the GEBs have been achieved can only be determined in the long term and with continuous monitoring.

Figure 1. Theory of Change Analysis and Results to Impact Analysis

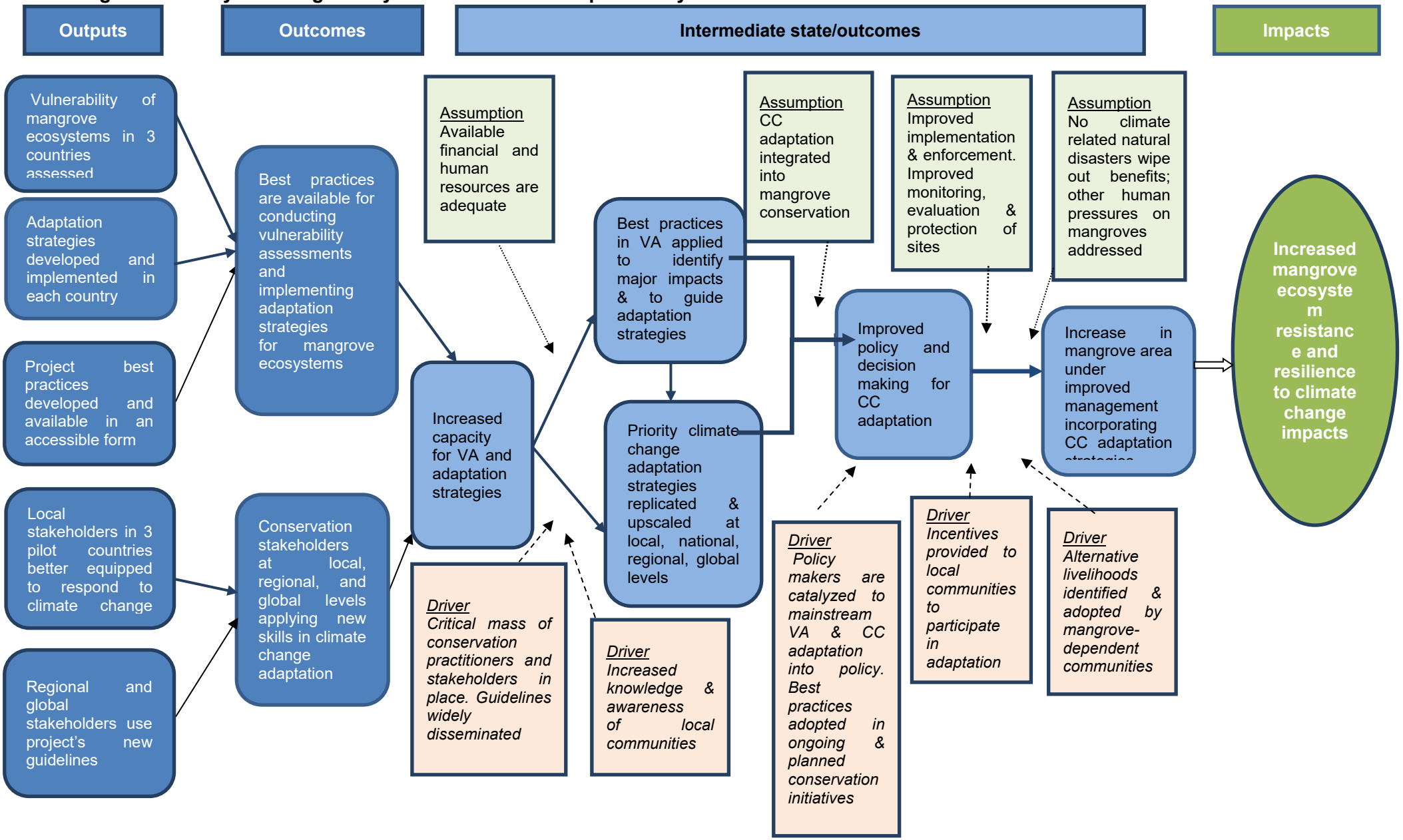

Table 3. Results and ratings of Review of Outcome to Impact Analysis

Results rating of project entitled: Coastal Resilience to Climate Change: Developing a Generalizable Method for Assessing Vulnerability and Adaptation of Mangroves and Associated Ecosystems							
Project objectives: 1. Improve guidelines for managing mangrove ecosystems vulnerable to climate change; 2. Strengthen capacity of local, regional, and global conservation practitioners in critical aspects of climate change adaptation							
Outputs	**Outcomes**	**Rating (D – A)**	**Intermediary**	**Rating (D – A)**	**Impact (GEBs)**	**Rating (+)**	**Overall**
1.Vulnerability of mangrove ecosystems in three countries assessed 2. Adaptation strategies developed and implemented in each country 3. Project best practices developed and available in an accessible form	1. Best practices are available for conducting vulnerability assessments and implementing adaptation strategies for mangrove ecosystems	**B**	Increased capacity for VA & adaptation strategies Best practices in VA applied to identify major impacts & to guide adaptation strategies Priority climate change adaptation strategies replicated & upscaled at local, national, regional, global levels	**B**	Increased mangrove ecosystem resistance and resilience to climate change impacts		**LIKELY**

4. Local stakeholders in three pilot countries are better equipped to respond to climate change impacts 5. Regional and global stakeholders use project's new guidelines	2. Conservation stakeholders at local, regional, and global levels applying new skills in climate change adaptation		Improved policy and decision making for CC adaptation Increase in mangrove area under improved management incorporating CC adaptation strategies				
	Rating justification: B The **B** rating reflects that the project's intended outcomes were delivered, and were designed to feed into a continuing process, but with no prior allocation of responsibilities after project funding**.**		**Rating justification: B** The B rating reflects that the measures designed to move towards intermediate states have started and have produced results, which give no indication that they can progress towards the intended long term impact.		**Rating justification: BB** The BB rating corresponds to 'Likely' that the GEBs will be achieved.		

126. The overall likelihood that the long term impact (GEBs) will be achieved is rated on a six-point scale as **likely (BB)**. This rating is based on the following observations (Table 3):

- The project has produced guidelines for vulnerability assessment and adaptation of mangrove ecosystems, which were not previously available, and has succeeded in building considerable capacity and awareness among a wide cross-section of stakeholders at all levels within the project countries and beyond. It was expected that these guidelines will feed into ongoing and planned projects and programmes for climate change vulnerability assessment and adaptation in the post-project period, but there was no specific prior allocation of responsibilities after project funding. (Rating B).
- Measures designed to move towards intermediate states are evident in the momentum that the project has generated towards incorporation of climate change vulnerability assessments and adaptation into ongoing and planned projects and programmes of governments, NGOs, bilateral donors, regional and international organizations and others. These measures have produced some results, but give no indication that they can progress towards the intended long term impact, which will only be discernible in the longer term. (Rating B).
- There was no expectation that environmental impacts would be realized during the project's lifetime.

127. The overall rating on Section A (Attainment of planned results) is **Satisfactory**, reflecting the achievement of project outcomes and outputs but some weakness in timeliness of execution.

B. Sustainability and catalytic role

B1. Sustainability

128. Sustainability is contingent on the adoption, replication, and upscaling of the vulnerability assessments and adaptation measures, and importantly, the required financial, socio-political and institutional support (as implied in the ROtI analysis). The project design implied that project outcomes and benefits would be sustained through linkage with other projects and initiatives (by incorporating climate change adaptation); increasing stakeholders' capacity; developing methodologies and strategies that can be adapted in other sites; engaging with the appropriate government ministries and uptake of project results into policy development; and integration of lessons into conservation plans and climate adaptation work programme of WWF and other conservation practitioners.

129. The following paragraphs examine sustainability factors that affect progress towards project impacts as described in the ROtI analysis. External factors are primarily considered under financial, institutional, and socio-political sustainability in view of the importance of availability of financial resources for upscaling vulnerability assessments and adaptation measures, ownership of the assessment results, and political will to mainstream climate change considerations into policy and decision-making.

130. When a project has just ended, any discussion on sustainability may be at best speculative. Conducting the TE two years after closure of the project provided an excellent opportunity to examine the prospects for sustainability based on developments in the post-project period.

Financial Resources

131. Financial sustainability was expected to be addressed *"by linkages of this project to existing or planned large-scale programs in place within the target countries*." Financial sustainability depends to a large extent on external funding and initiatives, as the Project Document did not propose strategies for self-financing in the post-project period, for example, through mechanisms such as payment for ecosystem services or public financing that should go together with policy development and implementation. At the time the project was developed, a follow-up GEF project was not envisaged, although there are opportunities through other ongoing and planned GEF projects for the uptake of the project's results.

132. Interviews with executing partners and stakeholders in the three countries revealed that the project has influenced ongoing and planned projects and programmes that are being funded from national budgets and/or by external donors. Climate change considerations were being incorporated into these initiatives, although the extent to which this could be attributed to the MSP or to climate change awareness and concerns that are now globally pervasive could not be determined in many cases. Nevertheless, the use of elements of the guidelines in ongoing projects and programmes show good prospects for financial sustainability. For example, in Tanzania, mangrove restoration is supported by Norway and the GEF Small Grants Programme, and the Tanzania Coastal Management Programme is supported by USAID. In Fiji, the "Building Resilience Project" for mangrove protection and rehabilitation is supported by AusAid.

133. The prospects for financial sustainability can therefore be considered **moderately likely**, contingent on the continued support by national governments and bilateral donors for initiatives incorporating climate change adaptation. As shown in the ROtI analysis, continued funding at various levels will clearly be important if the project outcomes are to be replicated and upscaled in other sites.

Socio-political Sustainability

134. From the outset the project engaged with stakeholders at all levels, from local communities and academic and research institutions to government department and ministries in the three countries. Not only did this increase awareness and capacity within the countries for vulnerability assessment and adaptation, but also promoted some degree of ownership of the project results, all of which contribute to socio-political sustainability.

135. During visits to the three countries by the TE team, it was notable that after two years, there was still considerable interest and enthusiasm among local communities for continued involvement in vulnerability assessment and climate change adaptation. For example, in the Rufiji Delta, community representatives, some of whom were designated as 'champions' under the project, were very much aware of climate change impacts and were eager to continue with mangrove replanting and maintaining replanted plots. Similarly, in the Campo Estuary of Cameroon, local community members also showed a high level of awareness and enthusiasm for protection of the surrounding mangroves. Their continued involvement however, is dependent on government support and the existence of the appropriate institutional and policy framework that would allow them to be formally engaged and compensated. In Fiji, the Tikina Wai community continues to protect the mangrove forest and to monitor indicators for climate change adaptation, and families take turns to use the salt pan and run the mangrove ecotourism programme.

136. Further, as these communities are highly dependent on mangroves for their livelihoods, development of alternative livelihoods will enhance social sustainability. In the Rufiji Delta, for instance, mangroves have been converted to rice farms, and some rice farmers interviewed expressed their willingness to allow their farms to be restored to

mangrove if they are provided with alternatives to rice farming. In Cameroon the project helped to strengthen local and community- based organizations by providing more secure access to funding opportunities for activities such as obtaining clean development mechanism support for improved smokehouses, which will benefit both the users and the ecosystem. Adaptation strategies also include increasing the adaptive capacity of human communities to climate change, which will promote social sustainability (although the focus of the project was the ecosystem).

137. At the political level, the project document recognized that by working with various government ministries in charge of natural resources and land use, lessons learned from the field will be taken into account in policy development processes for conservation and sustainable management of mangrove forests. Progress towards achievement of impact will be dependent on the results being integrated into mangrove conservation plans and policies within the target countries and beyond. Interviews with Tanzanian partners and stakeholders revealed that elements of the manual were being used to incorporate climate change considerations into mangrove restoration (Forestry and Beekeeping Division) and into integrated coastal management strategies (Tanzania Coastal Management Programme, a joint USAID/Government of Tanzania Initiative). In Cameroon, the project contributed to the classification of the Rio Del Rey Estuary as a Ramsar Site, supported the CMN and CWCS for the ongoing revision of the national forest law to integrate mangrove forests and the ongoing gazettement of the Douala-Edea Reserve as a national terrestrial and marine park. In Fiji, the guidelines have contributed to the National Policy on Climate Change and the technical findings have influenced the National Integrated Coastal Management Framework and the National Disaster Management Office Strategic Action Plan.

138. Socio-political sustainability could be placed at risk if government priorities change, communities do not derive any direct benefits from adaptation, among other factors. Social and political instability could also hinder progress towards project impacts, as was seen in Verata, Fiji and the Rio Del Rey Estuary of Cameroon. In the latter, border conflict with Nigeria forced the project to abandon these areas as potential sites. In many cases, mangrove forests are transboundary ecosystems (shared with adjacent countries), which could affect political sustainability. Regional projects such as GEF Large Marine Ecosystem (LME) projects in Africa and the Pacific Region present opportunities for enhancing political sustainability (among the issues that LME projects aim to address is coastal habitat destruction).

139. Socio-political sustainability is rated as **highly likely**.

Institutional Framework

140. Existence of the appropriate institutional framework is critical for sustainability of project outcomes. In all countries, government departments at national/ provincial levels have a mandate for mangrove (or forest) conservation and programmes for climate change adaptation, and CBOs and NGOs are also very active in mangrove conservation. The project helped to strengthen the existing institutional framework for climate change adaptation in the three countries, by building capacity for vulnerability assessment and adaptation planning. In Cameroon's Douala–Edea area, the local institutional framework for adaptation was strengthened through the creation of COPCVAM (a mangrove steering committee that brought together local government, NGOs and community members). The project also directly supported the efforts of the Cameroon Mangrove Network, which brings together NGOs and researchers working on mangrove conservation and adaptation. Ten local organizations, all CMN members, were trained in vulnerability assessment methodologies.

141. In Fiji, the National Policy for Climate Change Adaptation was formulated in consultation with non-governmental organizations, including WCS and WWF, academicians, and private sector representatives during June to October 2011. At that time, the vulnerability assessment of mangrove forests were already known from the project sites and adaptation measures were being discussed among the stakeholders. The knowledge gained in the project was shared in this consultative process. A member of the project team is now employed in the Climate Change Unit (responsible for coordinating actions with stakeholders and interaction with the Climate Change Task Force and the Internal Policy Committee).

142. By engaging representatives from a number of diverse institutions within the three countries (e.g., government, academic, CBOs and NGOs), the project helped to strengthen the existing institutional framework for climate change vulnerability assessment and adaptation in all three countries. Nevertheless, the institutional frameworks need further strengthening, especially in regard to adequate human and financial resources, availability of data and expertise, and clear definition of roles and mandates with respect to mangrove management.

143. The rating on this dimension of sustainability is rated as **moderately likely** reflecting the need for further strengthening of the institutional framework for climate change vulnerability assessment and adaptation.

Environmental Sustainability

144. In the long term, and as illustrated by the ROtI analysis, the project outcomes are expected to lead to an increase in the resistance and resilience of mangroves to climate change impacts. Therefore, environmental sustainability is implicit in the progress towards project impact, through development and implementation of appropriate adaptation strategies. A number of achievements attributed to the project are expected to promote environmental sustainability. For example, in Cameroon, the project has contributed to classification of the Rio Del Rey Ramsar site and to the ongoing gazettement of the Douala-Edea Reserve into a national terrestrial and marine park. In Fiji, the project has contributed to establishing networks of marine protected areas, encompassing mangroves, seagrass beds, and coral reefs. In Tikina Wai, the project has facilitated the endorsement by the local community and management at the district level. Increased awareness of ecosystem vulnerability and enhanced interaction among officers from different governmental agencies, public sector, villagers, academicians, and conservation practitioners can improve integrated management in the coastal zone, which in turn builds resistance and resilience of mangroves to climate change.

145. Environmental sustainability, however, also requires the appropriate policies, legislation, monitoring, enforcement, etc. to be in place. As previously discussed, large scale climatic events and human pressures on the ecosystem could obliterate any environmental gains derived from the project.

146. The rating on this dimension of sustainability is rated **moderately likely.**

B2. Catalytic Role and Replication

Catalytic Role

147. The project has catalyzed climate change vulnerability assessments and adaptation in the project countries and others. The availability of the methods manual, of which nothing of its kind was previously available, greatly enhances the catalytic role of the project. So too do the capacity and awareness that have been built by the project. In terms of institutional

changes, the project has encouraged government departments, NGOs and others to incorporate climate change adaptation into mangrove conservation programmes. For example, in Tanzania, the project has catalyzed the revision of the integrated coastal management strategy to incorporate climate change, and the use of 'climate smart' mangrove species in the Government's replanting programme in the Rufiji Delta. In Cameroon, the project contributed to revision of the national forest law to integrate mangrove forests through support provided to the CMN and encouraged the cessation of cutting of mangrove in Campo.

148. In Fiji, the project has also catalyzed behavioral changes and contributed to institutional and policy changes (integration/coordination of efforts of various agencies and stakeholders). Replication of lessons has occurred in Fiji and likely in the South Pacific (SPREP, PACC) and Southeast and South Asia (MFF, WWF Global Network). The findings and lessons learned in the project have influenced the establishment of additional marine protected areas and inclusion of mangroves, seagrass beds, and coral reefs (see Fiji Report – Annex 6). There is also possible uptake by CTI Pacific and CT Southeast Coastal and Marine Resources Management (GEF/ADB CTI Programme) with WWF US advocacy.

149. The project has contributed to follow-on financing (catalytic financing), for example, in Fiji from Australia (AusAid on land-care, improving land-use practices up-stream to reduce threats to coastal and marine ecosystems) and in Cameroon (a GEF/FAO project on community-based management of mangroves).

Replication

150. A multi-faceted approach was proposed in the project document to promote replication and upscaling, which included development of a generalizable methodology that could be adapted in different sites both within and outside the project countries; dissemination of knowledge, project results, and best practices; and development and implementation of pilot initiatives on adaptive measures by local communities in each of the three countries, which could be replicated in other locations.

151. The project outcomes represent two essential ingredients needed for replication that would contribute to achievement of GEB - the generalizable methodology and capacity for vulnerability assessments and adaptation (also for sustainability). The project not only produced an important tool (manual) but also built capacity for using this tool, which are essential for replication. There are excellent potential for replication as seen within the two years following project closure. At the time of the country visits it was evident that significant strides were being made to apply some of the project guidelines, particularly the adaptation strategies (e.g., use of climate-smart species in replanting programmes, reduction of human pressure through more fuel efficient smoke houses, designation of protected areas). Incorporation of elements of the guidelines in programmes of other countries and organizations (e.g., other WWF offices, SPREP and MFF) will facilitate replication and upscaling. The TE was unable to verify the extent to which the guidelines were being used within the WWF network or by UNEP, but there are good prospects for replication within these organizations that should be explored.

152. The nature of the methodology itself and how it was developed makes it relatively easy to replicate. It was developed in countries in which it was difficult to develop and demonstrate such a methodology because of a number of challenges such as low adaptation capacity, as well as technical difficulties such as limited data and in-country technical expertise. Therefore, applying this methodology should be far easier in countries that have more data and technical expertise.

153. The increasing interest in climate change adaptation around the world and the need for related tools and expertise mean that there are excellent opportunities for replication. This is already taking place in the project countries as well as in other countries and regions, including through national conservation programmes and donor-funded initiatives. Replication in other areas and contexts will also help to strengthen capacity and to generate additional experiences and lessons that will be valuable in refining the methodology.

154. For the project outcomes to have any significant impact (especially considering the scale at which climate change impacts are likely to be experienced), the activities have to move out of pilot mode and be upscaled over sufficiently large areas. The manual needs to be promoted and disseminated more widely, and replication requires sufficient time and financial resources.

155. The rating on catalytic role and replication is **satisfactory** in view of the strong catalytic potential of the project and foundation that has been laid, but there is need to promote and disseminate the manual more widely.

C. Processes affecting attainment of project results

C1. Preparation and Readiness

156. The MTR presents a comprehensive evaluation of the project and made recommendations and suggestions to address some of the resulting problems. The MTR found that the original project design was very ambitious, given the timeframe and available budget. This assessment was also made by the former task manager and a number of project executants as well as by the TE team. The MTR found that this was a badly designed project from the start, for a number of reasons among which was the unrealistic expectation that significant changes will be observed within a 2-3 year period. As mentioned in the MTR, one troubling aspect of the work was that causal links between ecosystem change / loss of services and climate change were being made when such links were not necessarily supported by empirical evidence. Concerns were expressed in the MTR about the feasibility of developing a generalizable methodology for climate change vulnerability assessment and adaptation from monitoring and adaptation (i.e. ecosystem management) activities that were developing in Cameroon, Tanzania, and Fiji. A number of respondents during the TE also expressed the opinion that the project was poorly designed and had initial doubts about whether the objectives were achievable. These issues were discussed in detail in the MTR.

157. The TE team concurs with the assessment of the MTR that the project design 'failed to anticipate that the time frame was far too short to allow the logical progression of activities as laid out in the proposal'. According to the project document, the sequence was meant to be as follows: initial developing of baselines, which would then be used to create a generalizable model for vulnerability assessment. Subsequently, project executants were to use the vulnerability assessment to develop climate change adaptation measures.

158. As discussed in Part 1B, based on weaknesses in the original design and other issues during the first year of implementation, the project log frame was revised to focus on only mangroves and sea level rise, and to streamline the outcomes and outputs. The project was extended to facilitate synthesis of the project results and preparation of the generalizable methodology.

159. Discussions with project executants in Cameroon and Tanzania and others revealed that there was a general feeling among them that the project was imposed on the countries in a top-down manner (this was also reported in the MTR). The TE team learned that the project was developed by WWF US and presented to the countries during the PDF-A phase

in 2005, when extensive consultations were held with stakeholders in the three countries. These consultations focused on site selection, seeking country endorsement, etc. However, as mentioned by one of the TE interviewees, by the time the project got underway, many of the persons consulted in the PDF-A phase had moved on or were not involved in project implementation. As a result, executants had to respond creatively, amending the work to match realities on the ground. The weakness in design was compounded by the limited intellectual and technical guidance provided by WWF US to the countries during the first year and a half of the project.

160. Fortunately for the project, there was already ongoing work in the three countries (through other initiatives and organizations) that could have facilitated the start of implementation of the project, for example, the RUMAKI project in Tanzania, mangrove monitoring by CWCS in Cameroon, and the South Pacific Programme of WWF (which encompasses marine biodiversity conservation and climate change adaptation in Fiji).

161. The Executing Agency (WWF US) was selected based on its strong presence in the countries and substantial programmes in coastal ecosystem conservation. Other partners were selected based on considerations such as technical competencies, relevant ongoing work in the selected sites, etc. The roles and responsibilities of lead partners (WWF and UNEP) and institutional arrangements for project execution were clearly defined in the project document. Nevertheless, the distinction between the roles of UNEP as an implementing agency and WWF US as an executing agency might not have been clear to the country executors at the time of project execution. In addition, the terms of reference of the global coordinator, country coordinators and chief scientist were included in the project document and were clearly expressed.

162. The project inception meeting was held in November 2005, although implementation was not initiated until well into 2006. The Implementing Agency (UNEP) was not present at the Inception Meeting. Further, the first Project Steering Committee and GACs meetings were not held until 2008. Had these meetings been held earlier with the executing partners, some of the problems encountered in the early stages might have been avoided.

163. The rating on preparation and readiness is **moderately unsatisfactory**. This reflects the weaknesses in the original project design and top-down approach. Although the log frame was revised to reflect a more realistic design, the original design resulted in inefficiency at the start of the project and delays in project progress, which required no-cost extensions.

C2. Implementation Approach and Adaptive Management

Implementation Approach and Management

164. The implementing agency, executing agency and executing partners as well as implementation arrangements are briefly described in the project document. The signature of the project document by both WWF US and UNEP was considered a legal agreement between the two partners. The former UNEP task manager informed the TE team that at that time, no other type of agreement (such as Memorandum of Understanding- MOU) was required. However, MOUs were established between WWF US and the executing partners within the countries. The institutional arrangements were largely implemented as anticipated in the project document.

165. A task manager was assigned at UNEP, but was subsequently replaced by another task manager in 2007. A global project coordinator was appointed at WWF US, and was expected to coordinate and implement activities in collaboration with WWF's Climate

Change Program, and also regional and national WWF offices and other WWF partners in the project countries. Coordinators were designated within each country to implement the project activities at the local level. A Coordinative Committee (later referred to as Global Advisory Committee in the PIRs and progress reports) made up of conservation practitioners from the governmental, non-profit, and private sectors were proposed in the project document. It was proposed that the Committee meet on an annual basis in order to ensure that lessons learned from this and other projects were incorporated both within existing projects and institutional and policy processes. The GAC met for the first time in 2008. The project document did not mention the establishment of a project Steering Committee, although one was subsequently formed and held its first meeting in 2008.

166. The MTR found that in the period preceding the MTR, the project had suffered from a range of management and execution problems that appeared to have affected several risk factors for success. Of particular concern was the apparent inconsistency with project management, communication and oversight, and intended integration of activities at the global level. The MTR expressed serious doubts that the project main deliverable—the generalizable methodology—would be achieved in the remaining time of the project as synthesis of the results and experiences had not yet commenced.

167. At the time of completion of the MTR, the project was on its third global coordinator. The first coordinator left WWF US for another job shortly after the project started and the second coordinator was replaced (purportedly because of the financial crisis, as reported in the MTR), which was not reported to UNEP or the Steering Committee before hand. The third coordinator was appointed just as the MTR was completed in 2009. The management problems were attributed by UNEP Task Manager and others to little or no project management experience of the first two global project coordinators, although they had strong technical backgrounds. Further, the first two global coordinators had each assumed the role of technical advisor to the project. The Chief Scientist was not contracted by WWF US until 2008, although she had been helping Fiji since 2007.

168. The MTR elaborated in detail the issues in implementation and management approach in the period preceding the MTR. Communication was a significant problem, especially as this was a complex project with execution taking place by a range of actors and in sites scattered across three countries far removed from each other. The MTR linked this to changes in staff in WWF US, communication between UNEP and WWF-US and WWF Cameroon, as well as delay in start of project and in transfer of funds. The management budget of the global coordinator at the time was extremely limited, with only US$3,000 annually to manage the project, including covering travel costs for field visits and advisory meetings.

169. UNEP's dissatisfaction with the performance of WWF US was expressed in email messages of February and March 2008 to WWF US, based on the "Moderately Unsatisfactory" rating during the first year of implementation, given in the 2007 PIR report. UNEP expressed '*concern about the project's lack of progress and WWF's ostensible lack of interest in addressing this*' (although the last Global Coordinator felt that implying that there was a lack of interest by WWF was an unfair assessment). Furthermore, UNEP threatened to suspend the project if action was not taken by WWF. Following the MTR, in which an overall rating of 'Moderately Unsatisfactory' was given, UNEP again wrote to WWF in April 2009, requesting that a number of measures be taken to address the issues raised in the MTR, including implementing the recommendations.

170. At the country level the implementation arrangements proved more satisfactory than at the global level, although problems at the global level did have some repercussions at the country level. Project executants in Cameroon and Tanzania informed the TE team that prior to the MTR there was limited technical guidance and communication from WWF US, that there

was no coherent thinking on vulnerability assessment and adaptation and no common understanding of what the work would entail. They struggled with some of the activities, such as vulnerability assessment as there were little documented guidelines. Further, coordinators in Cameroon and Tanzania informed the TE team that there was no interaction between the countries, and activities were carried out independently of their counterparts in the other countries.

171. Country coordinators (Cameroon and Tanzania) were also expected to assume responsibilities under the project, in addition to their other duties, which considerably increased their already heavy workload. The Tanzania coordinator suggested that additional staff should have been hired for management of the project at the country level. The TE team concurs with this suggestion. The heavy workload of the coordinators and the lack of adequate funds for communication severely constrained activities and communication within country as well as with the Global Coordinator. In the final co-financing report from WWF, there was no provision for communication, while less than US$300 of GEF funds were allocated to communication, as shown on the budget in UNEP format that was included in the signed project document. The observation by the MTR that project executors struggled in difficult financial conditions and under immense pressures of time to adapt the project to the conservation realities on the ground was confirmed during TE interviews and examination of the PIRs and progress reports.

172. Appointment of the third Global Coordinator[10] (Jonathan Cook) and increased involvement of the Chief Scientist was a major turning point in the project, bringing it back on track following the MTR. This Global Coordinator had considerable project management experience as well as a technical background, and took firm action to implement the recommendations of the MTR and bring the project back on track. The Chief Scientist along with the Coordinator worked closely with the countries, providing much needed technical guidance, and initiated a process for compiling and synthesizing the results and experiences from the three countries into the generalizable methodology. Reorientation of the project to focus on mangroves, revision of the log frame, and the no-cost extension of the project were also instrumental in the successful completion of the project.

173. Despite these challenges in the countries, the country programmes and partners worked diligently to make this project a success. It was obvious to the TE team that there was much dedication and passion among executants that kept them going despite the various challenges they had to face. Activities within the countries were well-managed, with fiscal responsibility and transparency, and according to the MTR, 'true commitment to the spirit and goals of the MSP.'

174. The rating on implementation approach and management is **Satisfactory**, taking into account the initial problems in management and the situation following the MTR when the project was brought back on track.

C3. Stakeholder Participation and Public Awareness

Project Partners

175. Potential lead partners were identified during the PDF-A phase during multi-stakeholder consultations in the three countries. The project document lists the lead partners, among who were national lead agencies (WWF offices in the three countries and EAME National Committee for Tanzania); key government agencies; partner NGOs; and

[10] This coordinator left WWF US just as the project was ending but after the manual was prepared. He was succeeded by another coordinator, who helped with dissemination of the manual.

academic/research institutions (see Part 1B). These partners were selected based on a number of criteria, including presence and ongoing programmes in the countries and regions (WWF), relevance of mandate, goals and ongoing programmes (government agencies), ongoing activities and experience in the project sites (NGOs), and technical/scientific capabilities, ongoing activities, and availability of relevant data and information (academic/research institutions).

176. The mix of partners was effective and efficient, with each partner making important contributions towards different aspects of the project, which were necessary for achievement of project outcomes. Based on interviews with partners during the conduct of the TE as well as examination of the progress reports, PIRs, and project accomplishments (terminal report and technical outputs), it was clear that there was excellent collaboration among the partners, driven in part by their interest in and enthusiasm for the project. Despite the fact that the project presented relatively new concepts in climate change vulnerability assessment and adaptation, the appropriate choice of partners and collaboration between them was instrumental in the successful delivery of project outputs and outcomes.

177. It is worthy to mention that in addition to the lead partners specified in the project document, partnerships were established with other organizations and institutions during the course of the project. Among these were: Mangroves for the Future, Secretariat of the Pacific Regional Environment Programme, British Institute in East Africa, and York University.

Engagement of local communities

178. The project design recognized the benefit of adopting a participatory approach involving local communities in project activities. In the three countries, local communities are heavily dependent on the ecosystem services provided by mangroves and are themselves very vulnerable to climate change impacts. Further, the likelihood of success of implementation of adaptation strategies is increased by the direct involvement of local communities who are to be affected by these strategies. Further, engagement of local communities helps to ensure that their needs will be taken into consideration in the development of adaptation measures.

179. From the start there was close involvement of local communities and community based organizations in activities such as monitoring for vulnerability assessment and testing of adaptation strategies in Cameroon, Fiji, and Tanzania (Part II A). Some of these were already involved in monitoring, etc. long before this MSP started, and so were able to make significant contribution of data and information to the project. In Tanzania, information on indigenous knowledge and community perceptions of climate change within the Rufiji Delta was gathered to complement the ecological data from mangrove field surveys. In Fiji, the project built on and added capacity to pre-existing partnerships between WWF and communities, in cooperation with local natural resource management committees. The project also helped to strengthen some of these organizations, for example, the technical and organizational capacities of the CMN, local NGOs, and CBOs in Cameroon. In Fiji, villagers were involved in mangrove leaf litter collection and monitoring of mangrove sites.

180. A number of awareness raising fora were convened (see the following section) by the country project teams, in which local community members participated. Local communities also benefited from training workshops, with a number of individuals trained in all three countries in monitoring, vulnerability assessment methodologies, adaptation, etc. (Part II A).

181. The ROtI analysis recognizes the important role of local communities in progress towards achievement of the GEBs, including through direct involvement in implementation of adaptation measures and as beneficiaries, for example, of improved livelihoods.

Public awareness activities

182. Significant effort went into raising public awareness within the countries during project implementation. National and regional meetings took place regularly in each country during the course of the project. For instance, in Fiji, the Department of the Environment and WWF co-hosted a national workshop on mangrove resilience to climate change, in Suva in March 2009. This included 54 participants from government agencies, academic institutions, NGOs, and community groups. In Cameroon, WWF helped to organize a Coastal Forum in Buea to discuss the role of mangroves in coastal adaptation. In Tanzania, WWF invited government representatives to participate in the 2008 GAG meeting. Other meetings were held specifically to target regional stakeholders. For example, a Pan-African Climate Symposium was convened in May 2010 in Douala by WWF and the CMN. About 90 participants including parliamentarians, local authorities, government technical services, and the private sector participated in this symposium.

183. Interviews and focus group discussions undertaken during visits by the TE consultants to the three countries revealed that the level of public awareness about climate change impacts and adaptation as well as about the project itself, was relatively high at all levels of stakeholders, including villagers. Nevertheless, it should be pointed out that the extent to which this level of awareness could be attributed directly to the project or to other initiatives and organizations could not be ascertained as no stakeholder awareness surveys were undertaken during project implementation. Prior to the project, climate change awareness raising activities had already been ongoing in Cameroon, Fiji, and Tanzania through the work of government agencies, NGOs, and CBOs, among others. However, there is no doubt that the project has enhanced public awareness in the participating countries.

184. The overall rating on stakeholder engagement during the project is rated as **highly satisfactory**.

C4. Country Ownership and Drivenness

185. The issue of country ownership and drivenness was addressed in the project document, which elaborates on consistency of the project with national priorities and plans and how the project would help the participating countries to meet their obligations under the CBD and the UNFCCC. Countries participating in this project are particularly vulnerable to the effects of climate change not only due to physical and geographic characteristics, but also due to lack of institutional capacity. The climate change project responded to the needs of the countries for strengthened capacity to deal with climate change impacts.

186. During the PDF-A phase, each participating country provided a letter of endorsement for the project. At multi-stakeholder workshops held in each of the three countries during the PDF-A phase, the countries expressed support and enthusiasm about the project.

187. The project's execution arrangements included involvement of key government ministries and departments, with a project focal point designated within the government in each country. At the national level, the WWF teams engaged closely with relevant government departments, with whom effective collaborative arrangements were forged. For example, in Tanzania, a major partner was the Forestry and Beekeeping Division, which played a key role in the activities in the Rufiji Delta. One of its staff members (Frank Sima), who had a good, long standing relationship with local communities in the delta, was seconded to WWF Tanzania to coordinate the adaptation trials in this area. In discussions with the Director, Natural Resources Management of the Tanzania Ministry of Natural

Resources and Tourism (Mr. Mwambo) and Deputy Director of the TCMP (Mr. Mahenge), it was obvious to the TE consultant that the Government was fully supportive of the project during it implementation and committed to incorporating some elements of the results in national programmes.

188. In Cameroon, there was also support from and close involvement of NGOs (notably CMN and CWCS) and academic institutions (Universities of Buea and Douala). Dr. Gordon Ajonina, a mangrove specialist and key member of the CMN, who was a consultant with the project, contributed his long time series of data on mangrove monitoring to the project. He informed the TE consultant that there was significant buy-in for the project at the national and local levels.

189. In Fiji, the national government has adopted the findings and recommendations of the project in its National Policy for Adaptation to Climate Change 2010 and its position in the global conferences on climate change. The local district government has taken over the project (particularly the cooperation with the villagers to protect mangrove forests from clearing for large infrastructure development). The socio-political environment was conducive for the successful execution of the project in two (Tikina Wai and Kubulau) of the three sites.

190. The project's contribution to ongoing and planned programmes in the countries (See Part B1, Sustainability) also helped to foster a sense of ownership at the national level. This was particularly notable during discussions between the TE consultant and Government officials and other national experts in Tanzania and Cameroon. Cognizant that success depended on the involvement and commitment of affected communities, the project also engaged local communities in planning and execution, which promoted a sense of ownership among them.

191. Notwithstanding the foregoing, a number of persons interviewed for the TE felt that the project was imposed in a top-down manner. This was also reported in the MTR. The TE team learned that at the time of the PDF-A, the project was already designed and the countries were approached for endorsement, identification of partners, site selection, etc. Further, because of the delay in project start up, several persons who were involved in the PDF-A phase were no longer available during project implementation. This top-down approach was thought to contribute to some of the problems encountered in project implementation.

192. Ownership in Cameroon has been affected by the issue of authorship and credit reflected in the mangrove manual. The front cover of the manual states that the author is the Chief Scientist, with major contributions from the Global Coordinator and WWF coordinators in the South Pacific and Tanzania, while the contribution of the Cameroon coordinator and others are recognized in the acknowledgements on the second page of the manual. The Cameroon Coordinator and one of the main project executants also revealed that they had not received the draft manual for comments. It was obvious that this situation created an obstacle to the dissemination and use of the manual in this country and perhaps within West and Central Africa. The TE consultant was informed that there are plans for the production of another manual for Cameroon and that project funds were still being held by WWF Cameroon for this purpose.

193. The Chief Scientist and Global Coordinator (who were both previously unaware of and expressed regret about this situation) explained that the persons whose names appeared on the front cover had made a significant contribution to the drafting of the manual. Further, that at the time of preparation of the manual, the WWF Cameroon coordinator had already left WWF and could not be reached by the team preparing the manual. However, attempts should have been made to contact WWF Cameroon. In response to this matter, the former

UNEP Task Manager indicated to the TE consultant that the project was a team effort among all three WWF country offices and credits should have been appropriately and equally accorded. As specified in the project document (Section 4- Institutional Framework and Evaluation), 'UNEP retains responsibility for review and approval of the substantive and technical reports produced in accordance with the schedule of work'. The approach to authorship and credits in the reports, including the manual, should have been scrutinized by UNEP and any issues resolved before publication. This having been a technical project with the production of a range of scientific outputs, there should have been agreement among all parties concerned regarding authorship and credits of the scientific publications at the start.

194. The rating on country ownership and drivenness is **moderately satisfactory,** on the one hand based on the contribution of the project to meeting the needs of the countries for increased capacity for climate change adaptation, and to national priorities and plans, and on the other, the top-down approach to design and implementation of the project.

C5. Financial Planning and Management

195. The project's financial plan and a detailed budget (in UNEP format) were presented in the Project Document. This budget was based on the GEF approved budget provided in the MSP brief. GEF support amounted to a total of US$1,000,000 ($25,000 for the PDF-A and $975,000 for the MSP. Almost all (more than 90%) of the GEF MSP funding was disbursed to the lead partner (WWF US). The MSP funds were allocated as follows across the three years of the project: 2006: $346,041; 2007: $307,441; and 2008: $321,518.

196. A formal project revision was undertaken in October 2008, the reasons for which were:

a) To record expenditures of NIL for 2006 and $217,970 for 2007;

b) To re-phase the unspent balance of $435,512 from 2006 and 2007 to 2008, thus increasing the 2008 budget to $346,518, and introducing 2009 and 2010 budgets as follows: 2009: $257,485; and 2010: $153,027;

c) To extend the project to June 2010 to enable all project countries to complete three full seasons of monitoring needed to provide a solid baseline and refine monitoring methodology.

197. Another revision was conducted in 2010 in order:

d) To record expenditures of $199,719 for the year 2008 and $192,649 for the year 2009 to the GEF trust fund;

e) To re-phase the unspent balance of $211,635 to the year 2010, thereby introducing a budget of $364,662 in the year 2010;

f) To extend the project to 31 December 2010, as per an extension request from WWF US.

198. The budget was revised in 2010 to accommodate minor reallocations between budget lines on the GEF funds. The total cost of the project to the GEF Trust Fund remained unchanged. A consolidated budget showing expenditure of GEF funds as at 21 November 2011 showed an unspent balance of $22,252.

199. Annex 8.1 provides a breakdown of expenditure of the GEF grant by budget line components. The expenditure rate was reasonable.

Other Administrative Processes

200. In terms of administrative processes, the project was approved by GEF in September 2005, but the first disbursement was only received by the lead Executing Agency in June 2006. This delay was due primarily to delays in finalization of MOUs with WWF country offices. Subsequent delays were also caused by the time needed for revisions to the project, workplan, and budget. Other delays were caused for various reasons, for example, disbursement of funds to Tanzania was late because the finance officer was reluctant to sign the project agreement before changes he had requested were formally approved by UNEP. In Cameroon, the country coordinator was unfamiliar with the timing and procedure for cash advance request. As a result, the request was submitted late, which delayed disbursement for the second half of 2007.

201. The project document set out the requirements for financial reporting from WWF US to UNEP, including the schedule. During discussions with the UNEP Fund Management Officer (FMO), the TE consultant was informed that the schedule of financial reporting from the executing agency was irregular and did not always conform to the schedule as specified in the project document. This resulted in delays in disbursement of cash advances (receipt of the financial reports by UNEP is a condition for disbursement).

202. The MTR reported that true co-financing out of WWF US was not obvious from the review and by the time the project got underway, partners had begun to phase out the very projects that they claimed as co-financing. Further, the MTR recommended that WWF US create an open and transparent database on project budget, specific allocations in-country, expenditures, and co-financing, indicating whether amounts represent actual funds or in kind contributions. During the TE, all financial reports and records made available to the TE consultants were in order and deemed satisfactory by the FMO. Independent financial audits on WWF US were conducted annually and no irregularities were found.

Co-financing

203. Annex 8.2 provides a report of the co-financing received from WWF US for the period January 2006 to December 2010. A summary of expected and realized co-financing is given in Table 4. The anticipated cash co-financing from WCS did not materialize and that of WWF US was increased by $89,431, bringing the total co-financing from the latter to $1,089,431. This was reported as cash co-financing of which the greatest proportion was allocated to the WWF offices in the three countries, contracting of the global coordinator, chief scientist and other lead experts, and meetings and workshops.

Table 4. Summary of Co-financing (at end of project)

Co-financing source	Anticipated in project document	Reported (24 February 2011)
WWF US	775,000	1,089,431
WCS (Fiji)	225,000	0
Total	**1,000,000**	**1,089,431**

204. The rating on financial planning and management is **moderately satisfactory**.

C6. UNEP Supervision and Backstopping

205. UNEP signed the Project Document on 17 May 2006 and WWF US signed prior to this on 11 May 2006. The signed project document represented the legal agreement between these two agencies and spelled out the obligations of each agency. Two successive Task Managers were designated from UNEP Division of GEF Coordination, with the second Task Manager taking over in 2007. The Task Managers provided oversight and accountability during the life of the project. The TE consultant held face-to-face discussions in Nairobi with the second Task Manager and regularly exchanged email messages during the conduct of the TE. The second Task Manager participated in the joint GAC and Steering Committee Meetings in June 2009. As previously mentioned, UNEP did not participate in the project inception meeting in 2005.

206. Oversight and supervision by the Task Manager was based mainly on the PIRs, as these reports showed if the project was achieving the technical outputs and eventually the expected outcomes. The PIRs provided detailed information on and assessment of project progress as well as actions needed to address identified problems. Five PIRs were prepared over the duration of the project (one each in 2007-2011), and reflected the change in the status of the project from Moderately Unsatisfactory in 2007 to Satisfactory in 2011. For each PIR, the Task Manager was responsible for giving an overall rating (using GEF 6-point scale system) of project progress towards meeting project objectives, on overall project implementation progress, monitoring and evaluation, as well as identifying actions required to address low ratings. The PIRs also included a detailed analysis of risks, and the Task Manager was responsible for providing ratings on her assessment of risks to the project. Ratings assigned in the PIRs were realistic.

207. The process followed for revision of the log frame and its approval was initially not clear to the TE team as no documentation was found on this issue. The team was informed by the former Global Coordinator that the Task Manager had informally approved the revised log frame. But persons interviewed in the countries did not appear to be fully aware of the revised log frame and there was obviously some confusion among project executants, who continued to use the original log frame, including for the PIRs, whose template continued to be based on the original log frame.

208. As part of its supervision and backstopping role, UNEP closely monitored project progress and regularly communicated with the lead executing partner to ensure that any problems were addressed. In the first year of the project and following the MTR, UNEP firmly requested WWF US to put measures in place to address problems encountered and to bring the project back on track. In communication (February and March 2008) to WWF US, UNEP indicated that the project would be suspended if steps were not taken to address the lack of progress in the first year of the project. In another communication to WWF US following the MTR, UNEP clearly described a number of concrete actions that were required on the part of WWF US. The Task Manager worked with the Global Coordinator and Chief Scientist to ensure that the recommendations of the MTR were implemented in a timely manner. Nevertheless, prior to the MTR, UNEP could have been more proactive to ensure that the problems were avoided or addressed in a timely manner.

209. The former Global Coordinator informed the TE consultant that he had a very good working relationship with the Task Manager, but felt that UNEP could have made more technical inputs. According to the project document, UNEP ‘retains responsibility for review and approval of the substantive and technical reports produced in accordance with the

schedule of work.' The Task Manager, however, was not a mangrove or coastal specialist and claimed that her main interest was to see that the project was being satisfactorily implemented and accomplishing its activities and outputs. She indicated that she left the technical backstopping to the experts and Chief Scientist.

210. Financial records for the GEF funds were maintained by a Fund Management Officer (FMO). Oversight on the GEF funds administration was supported by the FMO.

211. The rating on UNEP supervision and backstopping is **moderately satisfactory**.

C7. Monitoring and Evaluation

M & E Design

212. M & E design followed UNEP's standard monitoring and evaluation procedure. The original project log frame (or results framework) included objectively verifiable indicators and means of verification for the project objectives, outcomes and outputs. The project document described, for the output level, the M & E activities, responsible parties, and performance indicators. It also described monitoring and progress reporting at the project level (semi-annual progress reports, PIRs, midterm review and terminal evaluation, financial reporting, and audits), timing and responsible parties. The indicative workplan given in the project document was subsequently revised, and was considered to be appropriate and realistic.

213. The revised results framework included appropriate revisions to the indicators, but provided indicators only for project objectives and outcomes. The five outputs in the revised log frame represented activities to be completed rather than tangible outputs, although for Outputs 1.1.1 – 1.1.3 it was implied that these would contribute to concrete deliverables (guidelines for vulnerability assessments and adaptation). Despite revision of the log frame, the original log frame continued to be used in the PIRs and progress reports (as explained by the Task Manager, executants were allowed to use the original log frame as long as the new elements in the revised log frame were also included). The revised results framework has been used for reporting on achievement of outputs and activities in Part II A of this report and in Annex 7.

214. In the revised log frame there were two indicators for project objectives and five for the outcomes, which were included in the M & E plan of January 2008. This plan also included a budget for the M & E activities. There were some weaknesses in the revised log frame, however. For example, the indicator on local knowledge is vague and the extent of knowledge is difficult to measure (especially in the absence of a baseline). The indicator 'Vulnerability of pilot areas in three countries' the means of measurement (Second vulnerability assessment shows reduction) was not realistic given that detection of any measurable changes would likely require longer timeframes. Some of the indicators did not appear realistically verifiable during the lifetime of the project, especially those relating to adoption and use of the guidelines during the course of the project (Practical and effective guidelines are being applied in at least 9 countries, including the three participating countries; Project guidelines integrated into biodiversity planning by leading conservation institutions). It was unlikely that these indicators could have been verifiable during the life of the project, although a number of other WWF offices and organizations had expressed interest in the guidelines. The means of verification and target do not necessarily provide evidence that the guidelines are integrated into biodiversity planning.

215. The rating on M&E design and arrangements is **moderately satisfactory,** considering some weakness in the log frame.

Budgeting and funding for M&E activities

216. The project budget included the costs for M & E activities (revised budget). The costed items were: audits: $9,000; and evaluation: $75,000. No funds were originally allocated for the mid-term review, but $25,000 was reported in the final statement of expenditure (Annex 8.1).

217. The M & E plan (January 2008) based on the revised log frame allocated $15,000 for verification of two indicators and $20,000 for the MTR and this same amount for the TE. The costs for other indicators were either included in other project activities or funds were not required. The MTR found that the budget was far too constrained to allow for effective M & E, but it was apparent that a substantial amount of the M & E cost were covered through other activities and budget lines.

218. The rating on budgeting and funding for M&E is **satisfactory**.

M&E Implementation

219. As mentioned above, the log frame was revised in 2008. This presented some difficulties for the TE team, especially as no official records were found of the process followed for the revision including its approval by the Steering Committee. There was reference, however, to the revision in other documents (after it took place). The Global Coordinator informed the TE consultant that the revised log frame was 'unofficially' approved by the UNEP Task Manager.

220. Introduction of the revised log frame and workplan caused some concern and confusion among project executants who had already initiated activities under the original log frame. This was compounded by the uncertainty in the status of approval of the revised log frame. While the coordinators in Cameroon and Tanzania used the log frame for guidance, they felt the M & E plan was too complex. As reported in the MTR, the Fiji Coordinator and project partners expressed frustration with the log frame, especially as it changed in the course of the project.

Following the log frame revision, progress reports and PIR reports continued to be based on the original log frame on which the template for the PIRs was based. The terminal report also followed the original log frame. The Task Manager informed the TE team that project executants chose to report on the original log frame because a number of activities had already been initiated or completed, and that this was acceptable to UNEP as long as the elements in the revised log frame were also reflected in the reporting.

221. The principal means of tracking progress were through the Steering Committee meetings, PIRs, and half yearly progress reports and PIRs. Over the period 2007 – 2011, five PIRs were produced. Four half-yearly reports were completed for the period January 2006 to December 2007 (following this period, only the PIRs were required). Detailed information on activities undertaken, project progress and problems as well as actions needed to address identified problems were given in the PIRs. The PIRs also included a detailed analysis of risks to the project. The five successive PIRs showed the change in the overall status of the project from Moderately Unsatisfactory in 2007 to Satisfactory in 2011. The assessment of project progress and ratings assigned in the PIRs were justified and provided adequate guidance in improving project performance.

222. Quarterly financial reports were also submitted by WWF US, although in some instances these were late in reaching UNEP.

223. The rating on M & E implementation is **moderately satisfactory**, based on the lack of clarity in the process for revision of the log frame and problems caused because it was not adequately communicated to the partners.

D. Complementarities with the UNEP Medium Term Strategy and Programme of Work

Linkage to UNEP's Expected Accomplishments and POW 2010-2011

224. The coastal resilience project was formulated prior to the completion of the UNEP Medium Term Strategy 2010-2013 and related Programme of Work (POW) for the period 2010-2011. Nevertheless there are complementarities with the expected accomplishments outlined in the Strategy.

225. The intended results are consistent with UNEP's programmatic objectives and expected accomplishments under its Climate Change and Ecosystem Management cross-cutting priorities of its Medium-term Strategy 2010–2013. The objectives and expected accomplishments focus on providing environmental leadership in the four areas prominent in the international response to climate change: adaptation, mitigation, technology and finance, and their interlinkages. The project's outcomes will contribute to UNEP's aim to help developing countries to reduce vulnerabilities and build resilience to the impacts of climate change, to build and strengthen national institutional capacities for vulnerability assessment and adaptation planning, and support national efforts to integrate climate change adaptation measures into development planning and ecosystem management practices.

226. Regarding linkages with the UNEP Programme of Work 2010-2011, the project is of particular relevance to two of the six thematic sub-programmes: Climate Change, the objective of which is to strengthen the ability of countries, in particular developing countries, to integrate climate change responses into national development processes; and Ecosystem Management, one of the expected accomplishments of which is that countries and regions have capacity to utilize ecosystem management tools.

Alignment with the Bali Strategic Plan (BSP)

227. The project's focus on capacity building and dissemination of methodology and best practices for vulnerability assessment and adaptation strategies is consistent with the Bali Strategic Plan for Technology Support and Capacity-building which aims at, *inter alia*, a more coherent, coordinated and effective delivery of environmental capacity-building and technical support at all levels and by all actors, in response to country priorities and needs. The project's objectives are highly relevant to a number of the objectives of the Plan, which is targeted towards developing countries and countries in transition.

Gender

228. The project design did not explicitly make any provisions for consideration of gender. Nevertheless, women were involved in several activities and also benefited from the project in some cases. In Cameroon, many of the adaptation trials – such as the improved smokehouses and tree planting activities – were led by women due to their involvement in natural resource collection in communities. In Fiji, community consultation and participation involved all social groups including women in the villages. One of the sites (Tikina Wai) has an active women and youth group that participated in the ecological assessments and formed the community mangroves monitoring team. And in Tanzania, women were actively

involved in village consultation meetings for adaptation planning village awareness meetings and mangrove restoration activities.

South-South Cooperation

229. The Coastal Resilience project did not explicitly intend to promote South-South cooperation, which was not mentioned in the Project Document. Nevertheless, the project facilitated South-South Cooperation through the involvement of the three developing countries in the development of the vulnerability assessment and adaptation methodology. Activities conducted in the countries, primarily by experts from developing countries, contributed to the preparation of the guidelines, which are a compilation and synthesis of the results and experiences in the countries.

Part III. Conclusions and Recommendations

A. Conclusions

230. The GEF medium size project "Coastal Resilience to Climate Change: Developing a Generalizable Method for Assessing Vulnerability and Adaptation of Mangroves and Associated Ecosystems" was designed to build capacity for climate change vulnerability assessment and adaptation strategies of coastal ecosystems (mangroves and associated systems). Specifically, it set out to develop a generalizable methodology for vulnerability assessment and adaptation strategies and to build the capacity of stakeholders in Cameroon, Fiji, and Tanzania, with the expectation that the project results will be adopted and applied in other sites and countries. In the second year of the project the design was revised to reorient the focus to solely on mangrove ecosystems and streamline the outcomes and outputs so that they were more realistic in terms of the available budget and timeframe.

231. The major objective of the terminal evaluation was to assess project performance (in terms of relevance, effectiveness and efficiency), and determine outcomes and impacts (actual and potential) stemming from the project, including their sustainability. These criteria are addressed in Part II, Sections A and B of this report.

232. The project's objectives and implementation have remained relevant in the context of the issues it intended to address. Climate change is expected to have significant adverse impacts on coastal ecosystems and the human communities that rely on them for livelihoods, food security and protection from extreme weather events. Yet, there is limited capacity in the countries for management of mangrove ecosystems in the face of climate change. Recognition of this is implicit in UNEP's programmatic objectives and expected accomplishments under its Climate Change and Ecosystem Management cross-cutting priorities of its Medium-term Strategy 2010–2013 and is consistent with the Bali Strategic Plan for Technology Support and Capacity-building, as discussed in Part II Section D. The project's objectives also remained pertinent to the GEF Biodiversity Focal Area and the GEF Operational Programme (OP) 2, the objective of which is "*the conservation and sustainable use of the biological resources in coastal, marine, and freshwater ecosystems*." Developing adaptation strategies that would increase sustainability of mangrove ecosystems (under both protected and non-protected status) was responsive to emerging issues under GEF Strategic Priority (SP) I (Catalyzing Sustainability of Protected Areas).

233. Cameroon, Fiji and Tanzania are parties to the United Nations Framework Convention on Climate Change and the Convention on Biological Diversity, and have identified coastal ecosystems to be of priority within their National Biodiversity Strategic Action Plans under the latter.

234. The evaluation of effectiveness is based on the extent to which the objectives were achieved (Improve guidelines for managing mangrove ecosystems vulnerable to climate change; and strengthen capacity of local, regional, and global conservation practitioners in critical aspects of climate change adaptation). Overall these objectives have been achieved, surpassing expectations expressed in the MTR. The project tested mangrove vulnerability assessment methodologies and adaptation strategies in the three countries, and the findings of these pilots guided the development of the generalized methodology. The guidelines were compiled to produce the methods manual: "*Climate Change Vulnerability Assessment and Adaptation Planning for Mangrove Systems*", which was published by WWF in 2012.

235. Several of the studies on which the manual was based have been published internationally in peer-reviewed journals and the manual itself has received good reviews from recognized scientific experts. Further, the diversity of vulnerability assessment approaches used independently in the three countries resulted in a more robust methodology. The manual is considered by the TE team to be scientifically credible and robust, and to meet international standards.

236. By directly engaging stakeholders at local and national levels in the execution of the project as well as through targeted training during capacity building workshops, the project laid a strong foundation for climate change vulnerability assessments and adaptation of mangroves within the three countries and also helped to incorporate some of their needs. The TE team learned that at the start of the project, there was limited understanding and capacity for vulnerability assessment and adaption even within the WWF network. By the end of the project, partners and stakeholders had gained considerable understanding and skills regarding these issues, as evident in the technical reports produced, continuation of activities in the post-project period, and uptake of elements of the project results in other initiatives.

237. It was anticipated by the project proponents that the guidelines would be used by regional and global stakeholders (a project Output), including WWF networks, but this did not materialize to any large extent and use of the guidelines has been sporadic. For instance, the guidelines have been used by the former project WWF coordinator in Tanzania to build capacity for vulnerability assessment in the East Africa Coastal Conservation Initiative. Interest in the guidelines was expressed by regional and global organizations, but the TE team was unable to verify the extent to which the guidelines are actually being used. It was perhaps unrealistic to expect that the guidelines would be used at regional and global levels during the life of the project, considering the short time available to simply develop the guidelines. Provisions should have been made in the project design for adequate time and financial resources for both development of the generalizable methodology and capacity building at regional and global levels, for example, through a five-year project instead of three years. There is need to more widely disseminate and promote the guidelines at regional and international levels if there is to be any significant impact on capacity at these levels.

238. Project implementation was cost-effective, owing to a number of factors, including appropriate site selection, establishment of effective partnerships with key organizations, agencies and local communities among others, building on the ongoing programmes of partners and utilization of existing methods and data sets, working with a common ecosystem in diverse ecological contexts in three different countries, and reorientation of the project to focus on only mangroves and the impacts of sea level rise.

239. On the other hand, a number of factors reduced efficiency and hindered progress in the first two years of the project, including inadequate in-country expertise, high staff turnover (particularly changes in WWF global coordinators), poor communication among the

project partners, limited technical guidance to the countries and initial problems in project management. In addition, efficiency (in terms of timelines) was reduced because of the delay in project start up resulting from the late release of funds from UNEP because of the extended period of time taken to finalize MOUs between the lead executing agency and its key partners. The project lost nearly one year following the inception meeting in 2005, as a consequence of which a no-cost extension was required to ensure that the objectives were achieved. Revision of the project log frame to focus on only mangroves and redefine the objectives, outcomes and outputs as well as hiring of a more experienced global coordinator and fully engaging the chief scientist following the MTR greatly helped to increase project performance in the remaining period.

240. The ROtI analysis shows a number of 'drivers' that strengthen the potential for catalyzing progress towards achievement of impact (GEBs). Among these are strengthened capacity for vulnerability assessment and adaptation planning, increased public awareness, and momentum towards incorporation of climate change vulnerability assessments and adaptation into ongoing and planned projects and programmes of governments, NGOs, bilateral donors, regional and international organizations and others. On the other hand, the likelihood that the GEB will be achieved is based on a number of assumptions including the availability of adequate human and financial resources for replicating and upscaling the project results, mainstreaming climate change considerations in policy and decision-making, improved monitoring and enforcement, and addressing other human pressures on the ecosystem. Long term impacts will more likely accrue if climate change adaptation forms part of a wider framework for management of mangrove ecosystems. The overall likelihood that the GEBs will be achieved is rated on a six-point scale as **likely** (BB).

241. There is good prospect for sustainability of project results, but this is contingent on the adaptation, replication, and upscaling of the vulnerability assessments and adaptation measures, and importantly, the required financial, socio-political, and institutional support. The project design did not make provisions for direct, continued financing, but incorporation of some aspects of the guidelines in ongoing and planned projects and programmes that are being funded from national budgets and/or bilateral donors indicates some degree of financial sustainability.

242. After two years following the end of the project, there was still considerable interest and enthusiasm among the former project partners, including government officials and local communities, for continued implementation of vulnerability assessment and climate change adaptation. The project has already influenced policy, for example, revision of integrated coastal management strategies in Tanzania to incorporate climate change and designation of the Rio Del Rey Estuary in Cameroon as a Ramsar site. Nevertheless, several factors could place socio-political sustainability at risk, for example, change in government priorities, communities not deriving any direct benefits from adaptation, and social and political instability.

243. By engaging representatives from a number of diverse institutions within the three countries (e.g., government, academic, CBOs, and NGOs), the project helped to strengthen the existing institutional framework for climate change vulnerability assessment and adaptation in all three countries. Nevertheless, the institutional framework in the countries needs further strengthening, especially in regard to adequate human and financial resources, availability of data and expertise, and clear definition of roles and mandates with respect to mangrove management.

244. Ratings for the individual criteria are given in Table 5. The overall rating for this project based on the evaluation findings is **Satisfactory.**

Table 5. Summary assessment and ratings by evaluation criterion

Criterion	Summary Assessment	Rating
A. Attainment of project objectives and results	The project's objectives and expected results were achieved. The technical outputs are of high quality, including the generalizable methodology, in which interest has been expressed by several other organizations. Capacity within the countries for vulnerability assessment and adaptation has increased. The overall rating is based on the ratings for Effectiveness (S) and Relevance (HS).	**S**
1. Effectiveness	The two objectives (revised) to improve guidelines and strengthen capacity were achieved. The guidelines (manual for vulnerability assessment and adaptation) was produced based on the work accomplished in the three countries and the capacity of a wide cross section of stakeholders strengthened through participation in training workshops and hands-on experience. But the manual was not produced in French as anticipated and there was sporadic use of the guidelines at regional and global levels.	**S**
2. Relevance	The project was relevant to UNEP's programmatic objectives and expected accomplishments under the Climate Change and Ecosystem Management cross-cutting priorities of its Medium-term Strategy 2010–2013 and the Bali Strategic Plan for Technology Support and Capacity-building. The objectives remained pertinent to the GEF Biodiversity Focal Area and the GEF Operational Programme 2 (Coastal, Marine, and Freshwater Ecosystems) as well as to the CBD and UNFCCC.	**HS**
3. Efficiency	A range of measures to promote efficiency were adopted during implementation (e.g., building on existing agencies, projects and programmes; engaging multiple countries to address common problems; and involvement of multiple stakeholder groups including local communities and NGOs). There was some weakness in terms of timeliness of execution, with delays in project start up, which reverberated through the project.	**MS**
B. Sustainability of project outcomes	The overall rating on this criterion is based on the lowest rating of the individual sub-criteria	**ML**
1. Financial	Financial sustainability depends to a large extent on funding and initiatives of other agencies and organizations. The project has influenced ongoing and planned projects and programmes that are being funded from national budgets and/or by bilateral donors, but the extent to which this will continue in the longer term remains to be seen.	**ML**
2. Socio-political	The project garnered considerable support at all	**HL**

	levels, from villagers to government representatives and academic institutions. It has also influenced policy development in the countries.	
3. Institutional framework	The project helped to strengthen the institutional framework in all three countries through direct involvement of members of key institutions and agencies (CBO and government), but there is need for further strengthening of the institutional framework for climate change vulnerability assessment and adaptation. 5.	**ML**
4. Environmental	Implementation of the vulnerability assessments and adaptation strategies will promote environmental sustainability, but this needs to be replicated and upscaled and the appropriate policies, etc put in place. Large scale climatic events and continuing human pressures can pose a risk to environmental sustainability. 6.	**ML**
C. Catalytic role (and replication)	The project has catalyzed climate change vulnerability assessments and adaptation in the project countries and beyond although the extent to which this is due to the project or to other initiative is not known. The guidelines and the capacity built will facilitate replication, but the guidelines need to be more widely promoted and disseminated.	**S**
D. Stakeholder involvement	A wide range of stakeholders, from local communities to governments and others, were involved in project execution. Considerable effort went into public awareness-raising.	**HS**
E. Country ownership/driven-ness	The project responded to the needs of the countries for increased capacity for climate change adaptation and generated a reasonable level of ownership. But there was dissatisfaction with the top-down approach to design of the project and the attribution of credits in the manual, which reduced level of ownership.	**MS**
F. Achievement of outputs and activities	All outputs were achieved and activities completed, including many of those under the original logframe. Technical outputs were of a high quality.	**HS**
G. Preparation and readiness	Appropriate partners were identified. The project was overly ambitious for the timeframe and budget, and did not take into consideration the realities on the ground, including limited capacity in the countries to implement the project. Initial delays were experienced in project start up because of late release of funds due to delays in finalizing MOUs.	**MU**
H. Implementation approach and management	The project was implemented as planned, but management and other issues in the first year posed a significant risk to the project. These	**S**

	issues were addressed following the MTR and the project was brought back on track. Because of initial delays, a no-cost extension of the project was required.	
I. Financial planning and management	The financing and co-financing of the project was well planned but the disbursement of funds from UNEP was delayed and co-financing from WCS did not materialize. There were delays in financial reporting and disbursement from WWF US to the countries not separately shown.	**MS**
J. Monitoring and Evaluation	The overall rating on M & E is based on rating for M&E Implementation.	**MS**
1. M & E Design	M & E design followed UNEP's standard monitoring and evaluation procedure. The revised log frame had some weakness in the indicators and means of verification.	**MS**
2. M & E Implementation	PIRs, progress reports and MTR were completed as required and used to track project performance. However, there was lack of clarity in the process for revision of the log frame and confusion caused.	**MS**
3. Budgeting and funding for M & E activities	Funds were allocated in the budget for M & E activities, including terminal evaluation and audits. Limited funds for TE meant that some site visits and activities had to be omitted.	**S**
K. UNEP supervision and backstopping	UNEP DGEF played an adequate role in supervision and backstopping but could have made greater effort in technical backstopping and been more proactive in addressing problems in the initial stages of the project.	**MS**

B. Lessons Learned

245. A number of valuable lessons learned are given in the MTR report and Project Terminal Report. These include lessons related to technical aspects as well as to overall management of the project. The following lessons (some of which reinforce those from the MTR and Terminal Report) emerged during the TE (not arranged in any order of priority):

i. Project documents need careful screening before approval to ensure that they are technically and operationally feasible and that goals and objectives are realistic under the proposed timeframe and budget, and are consistent with realities on the ground.

ii. Inputs of stakeholders and potential partners into project design are very important for projects whose implementation and execution rely on their involvement. This helps to

ensure that the project's design, objectives, activities, and expectations are in line with their capacity and capability, and promotes efficiency and ownership.

iii. Engagement of a wide cross-section of stakeholders at all levels, including local communities, is important in projects in which the achievement of the expected long term impacts is highly dependent on their actions. Further, identifying 'champions' among the different groups of stakeholders not only contributes to successful project implementation but also facilitates progress towards the global environmental objectives in the post-project period.

iv. Long inception periods can adversely impact project performance, as many factors necessary for success can change during this time, for example, priorities of stakeholders, availability of persons involved in project design, co-financing arrangements, loss of institutional memory, etc. A significant amount of time is required during the inception phase for various preparatory activities such as negotiation and signing of contracts with executing agencies, familiarization with GEF/UNEP procedures, etc. This should be taken into consideration in developing project workplans.

v. For a project of this technical nature, it is important to provide adequate and continuous technical support to project executants from the start (e.g., through establishment of a global technical advisory panel). Limited technical support during the first year and a half of the project hindered progress. The Global Coordinator was expected to provide technical guidance but the demands of managing such a complex project and meagre budgetary resources limited his ability to effectively provide such guidance in the early stages of the project.

vi. Having a strong technical background does not necessarily make an individual a competent project manager. This expectation could result in delays and underperformance of the project. It was expected that the first global coordinator, who had a strong scientific background, would both manage the project and provide technical guidance, but limited project management experience contributed to some of the problems initially experienced. Management and technical/scientific tasks need to be clearly separated and appropriately experienced persons hired.

vii. On-going communication among all partners involved in project implementation is crucial, especially when it involves many partners in multiple countries and sites, and when their respective outputs are to contribute to one overall deliverable, in this case the generalizable methodology. There must be a common understanding among all concerned about the expectations and modalities for achieving these expectations, including clear articulation of roles and responsibilities. The achievement of project goals and objectives should not be left to chance.

viii. Developing methodologies and building capacity for climate change vulnerability assessment and adaptation planning at regional and global levels within a three year period was unrealistic. Adequate time, financial resources, and planning are needed to strengthen capacity, and a longer time frame (five years) should have been anticipated to facilitate capacity strengthening as well as up scaling and replication of the guidelines at regional and global levels.

C. Recommendations

246. As the project has ended and this is the terminal evaluation, the following recommendations look ahead to the post-project period and development and

implementation of other GEF projects and sustaining the results of the Coastal Resilience Project. The recommendations are targeted to UNEP, WWF, and Government Agencies responsible for mangrove management and climate change adaptation.

i. The project created a considerable amount of interest and momentum within the countries and among a number of regional and international organizations, which evidently still exists. Further, the manual was produced and capacity strengthened in the countries for vulnerability assessment and adaptation, but follow-on activities are required for replicating and upscaling and addressing how results could be taken up into policy development. It is recommended that UNEP and WWF seek funding from GEF and other appropriate donors for a follow-on project (phase 2) and identify opportunities for the uptake of the results in other relevant planned projects and programmes.

ii. It is recommended that WWF and UNEP re-initiate efforts to disseminate and promote the mangrove manual among conservation practitioners in other countries and regions, particularly where mangrove ecosystems are under high threat from climate change impacts. These agencies should also promote knowledge-sharing through their networks on climate change vulnerability and adaptation of mangroves, which should include translation of the guidelines into other languages and preparation of public education materials aimed at local communities.

iii. The UNEP Task Manager, in collaboration with WWF (US and Cameroon) and the Chief Scientist, should identify a satisfactory solution to ensure that WWF Cameroon is given appropriate credit and more visibility for its contribution to the development of the mangrove manual, both in the electronic, online version and future printed copies of the manual. (Since preparation of the first draft of this report, the UNEP Task Manager initiated dialogue with the Chief Scientist for addressing the authorship issue).

iv. Government Agencies responsible for mangrove management and climate change adaptation in Cameroon, Fiji, and Tanzania should integrate climate change vulnerability assessment and adaptation into an overall strategy for mangrove management that addresses other pressures on mangrove ecosystems in a holistic manner. This will assist in progress towards achievement of the global environmental benefits.

v. It is recommended that Government Agencies (e.g. Ministry of Environment and Forestry in Cameroon, Forestry Department and Environment Department in Fiji and Forestry and Beekeeping Division, Ministry of Natural Resources and Tourism in Tanzania) responsible for mangrove management continue with monitoring activities (sea level rise, mangrove status, etc), in collaboration with NGOs, CBOs and local communities. Financial support for these activities could be obtained, for example, from national budgetary allocations, payment for ecosystem services, and other funding mechanisms.

Annex 1. Revised logical framework and M & E plan

LOGFRAME	Intervention Logic	Objectively verifiable Indicators	Source of verification	Risk
Goal	**Improved management of mangrove ecosystems to climate change impacts**			
Project objectives	1. Improve guidelines for managing mangrove ecosystems vulnerable to climate change 2. Strengthen capacity of local, regional, and global conservation practitioners in critical aspects of climate change adaptation	Practical and effective guidelines for assessing the vulnerability of and adapting mangrove ecosystems are available internationally in English and French. Practical and effective guidelines are being applied in at least 9 countries, including the three participating countries.		1. Availability of practical and effective guidelines may not be the primary obstacle to climate-smart mangrove management. 2. Turnover rates in key stakeholder organizations/governments may be so high as to undermine capacity-building.
Project outcomes	1.1 Best practices are available for conducting vulnerability assessments and implementing adaptation strategies for mangrove ecosystems 2.1 Conservation stakeholders at local, regional, and global levels applying new skills in climate change adaptation	Vulnerability of pilot areas in three countries Project guidelines meet international standards for vulnerability assessment and adaptation Local knowledge of vulnerability and adaptation Project guidelines adapted for use in at least 2 new sites in three participating countries and in at least 1 site in neighboring countries including Kenya, Mozambique, Indonesia, Philippines Project guidelines integrated into	Second vulnerability assessment shows reduction Project results published in peer-reviewed journals Survey of project participants (communities and govt) in pilot areas Survey of new sites	1 Effective VAs and adaptation action may require data or activities that are too expensive or time-consuming for most stakeholders. 2 Making best practices available may not be sufficient for uptake of best practices; it may require legislative action, changes in international donor priorities, etc.

		biodiversity planning by leading conservation institutions	Evidence of relevant managers in leading conservation institutions seeking project guidelines for use in their programs	
Project outputs	1.1.1 Vulnerability of mangrove ecosystems in three countries assessed 1.1.2 Adaptation strategies developed and implemented in each country 1.1.3 Project best practices developed and available in an accessible form 2.1.1 Local stakeholders in three pilot countries are better equipped to respond to climate change impacts 2.1.2 Regional and global stakeholders use project's new guidelines			
Project activities	* Meetings of the Global Steering Committee (once per year) <u>For output 1.1.1</u> Vulnerability of mangrove ecosystems in three countries assessed 1.1.1.1 Accumulate and assess global experience on conducting vulnerability assessments for mangrove and coral ecosystems 1.1.1.2 Create computer inventories of the selected region in each country (species distribution and conservation coverage) 1.1.1.3 Analyze past coral bleaching events in relation to mangrove proximity/health in Fiji and Tanzania 1.1.1.4 Develop vulnerability assessment methodology 1.1.1.5 Field test vulnerability assessment methodology, including monitoring against baseline 1.1.1.6 Finalize vulnerability assessments for each project country <u>For output 1.1.2</u> Adaptation strategies developed and implemented in each country 1.1.2.1 Accumulate and assess global experience on adaptation of biodiversity; disseminate to project executants 1.1.2.2 Identify adaptation options in each country that reconcile conservation with local needs 1.1.2.3 Develop adaptation strategy for each country that reconcile conservation with local needs 1.1.2.4 Implement pilot adaptation project in key sites			

	For output 1.1.3 Project best practices developed and available in an accessible form (decreased barriers to VA & adaptation globally) 1.1.3.1 Synthesize project experience into generalizable methodology for assessing vulnerability and adaptation of mangrove ecosystems 1.1.3.2 Develop training tools, based on generalizable methodology, including a CD-based training manual 1.1.3.3 Publish project results in leading peer-review journals 1.1.3.4 Publish project results in popular media, and other formats appropriate for local communities 1.1.3.5 Present project results, including training materials, at regional and global meetings For output 2.1.1 Local stakeholders in three pilot countries are better equipped to respond to climate change impacts 2.1.1.1 Increase awareness among local stakeholders: govt., NGOs, and communities on biodiversity vulnerability and adaptation in each country 2.1.1.2 Facilitate collaboration between local stakeholders, and in particular communities, and technical experts in vulnerability assessments and development and implementation of adaptation strategies 2.1.1.3 Convene national meetings to gather input from local stakeholders and showcase project results For output 2.1.2 Regional and global stakeholders use project's new guidelines 2.1.2.1 Test generalizable methodology and training materials throughout WWF's global network 2.1.2.2 Facilitate partnerships between leading climate institutions and conservation organizations

Monitoring and Evaluation Plan January 2008

Indicators	Means of measurement	Timeframe	Baseline	Target	Budget
Outcome 1.1 Best practices are available for conducting vulnerability assessments and implementing adaptation strategies for mangrove ecosystems					
Vulnerability of pilot areas in three countries	Second vulnerability assessment shows reduction	EoP	Vulnerability of mangrove ecosystems in project sites is understood only in general terms, with no hard data and insufficient information for targeted adaptation planning.	Concrete steps taken to reduce at least two sources of vulnerability in mangrove ecosystems in pilot sites.	Baseline assessment included in project activities. Second assessment ($9000)
Project guidelines meet international standards for vulnerability assessment and adaptation	Project results published in peer-reviewed journals	EoP	No publications	3 peer reviewed articles	Included in project activities
Outcome 2.1 Conservation stakeholders at local, regional, and global levels applying new skills in climate change adaptation					
Local knowledge of vulnerability and adaptation	Survey of project participants (communities and govt.) in pilot areas	Baseline and EoP		66% of surveyed stakeholders demonstrate understanding of vulnerability and adaptation	Cost of surveys ($6000)
Project guidelines adapted for use in at least 2 new sites in the WWF	Calculation of hectares covered by additional sites	EoP	No additional sites	At least 100,000 hectares of additional sites applying project guidelines	Not required

network					
Project guidelines integrated into biodiversity planning by leading conservation institutions	Evidence of relevant managers in leading conservation institutions seeking project guidelines for use in their programs	EoP	No use	At least 3 organizations request guidelines	Not required
Project execution progressing smoothly	Mid-term evaluation Terminal Evaluation	MoP EoP	N/A	Project risks identified in PIR have been addressed Project achieves Satisfactory rating	$20000 $20000

Annex 2. Evaluation timeline

(Lead consultant. See Fiji report for timeline of Supporting Consultant)

Date	Place	Activity and persons met
2012		
01-12 Nov	Home-based	Reviewing background docs, planning evaluation with supporting consultant, arranging interviews
13 -16 Nov	Nairobi, Kenya	Inception mission, UNEP Evaluation Office (S. King)
14 Nov	Nairobi, Kenya	Interview, UNEP Task Manager (E. Mwangi)
15 Nov	Nairobi, Kenya	Interview, UNEP Fund Management Officer
16 Nov	Nairobi, Kenya	Inception mission wrap up (S. Norgbey, S. King)
18 Nov	Depart Nairobi for Dar es Salaam, Tanzania	
19 Nov	WWF, Dar es Salaam, Tanzania	Meeting, J. Rubens (former project coordinator, Tanzania) and H. Machano (project executant), introduction to Frank Sima (Replanting coordinator)
20 Nov	Depart Dar es Salaam for Rufiji Delta	
	Kibiti, Tanzania	Courtesy visit, Z. Kitale, Tanzania Mangrove Manager (Forestry & Beekeeping Div.)
	Mfisini Village, Rufiji Delta	Visit to mangrove restoration site (by boat & foot), meet villagers
21 Nov	Mtunda A Village, Rufiji Delta	Visit to mangrove restoration sites (by boat)
	Nyamisati Village, Rufiji delta	Focus group discussion with Rufiji villagers (5), Frank Sima
	Nyamisati Village, Rufiji delta	Interview with Frank Sima
	Return to Dar es Salaam	
22 Nov	WWF, Dar es Salaam	Meeting, J. Rubens (cont'd from 19 Nov and debriefing of visit to Rufiji Delta)
	WWF, Dar es Salaam	Meeting, J. Mahenge (Deputy Director, Tanzania Coastal Management Partnership)
	World Bank, Dar es Salaam	Meeting, T. von Platen-Hallermund
	Min. Natural Resources and Tourism, Dar es Salaam	Meeting, Mr. Mbwambo, Director, Natural Resources Management
23 Nov	Depart Dar es Salaam	
2013		
22 Jan	Douala	Arrival in Douala, Cameroon
23 Jan	Douala/Campo	Meet with B. Tchikangwa (former project coordinator, Cameroon) and G. Ajonina (project executant); Depart Douala for Campo
24 Jan	WWF, Campo	Meeting, Gilles Etoga (WWF)
	Campo	Visit to mangrove replanting sites, monitoring stations in Campo Estuary (boat)
	Campo	Group meeting, Campo villagers (10)
	Depart Campo for Kribi	
25 Jan	Depart Kribi for Mouanko	
	Mouanko	Visit to Douala Estuary
	Mouanko	Meetings, B. Tchikangwa, G. Ajonina and S. Brice (Mangrove Management Committee)
	Return to Douala, Depart Cameroon	
01 March	Draft zero to UNEP EO	
11 March	Comments received from UNEP EO on draft zero	
16 March	Draft One submitted to UNEP EO	
22 April	Final set of comments received by evaluators	
10 May	Final report submitted to UNEP EO	

Annex 3. List of documents reviewed or consulted

(see also Annex 4.1)

i. Project document and original and revised log frame;
ii. Project work plans and M & E plans with associated budget;
iii. Semi-annual and annual progress reports to UNEP;
iv. Financial reports to UNEP from WWF US;
v. Expenditure statements;
vi. Cash advance requests documenting disbursements
vii. GEF Annual Project Implementation Review (PIR) reports (2007 – 2011);
viii. Correspondence from UNEP to WWF US;
ix. Report of Inception meeting;
x. Report of Steering Committee meetings;
xi. Task Manager mission report, GAC and Steering Committee meetings 2009;
xii. Project and budget revision documentation;
xiii. Methodology manual;
xiv. Technical reports produced/published (see Annex 4.1);
xv. Mid-term Review TORs, Report and Annexes;
xvi. UNEP and GEF policies, strategies and programmes pertaining to biodiversity conservation;
xvii. Project Terminal Report.

Annex 4.1. Technical reports and publications produced

(*reviewed by lead evaluation consultant)

*Ajonina, G. N., Chuyong, P. D., and Nkanje, B. T. 2011. Developing a generalizable methodology for assessing the vulnerability of mangroves and associated ecosystems in Cameroon: A country synthesis. Yaoundé, Cameroon: WWF Central Africa Regional Programme Office.

*Ajonina, G., Amougou, J., Ayissi, I., Ajonina, P., Ntabe, E., and Dongmo, M. 2009. Waterbirds as bio-indicators of seasonal - climatic changes in river basin properties: eight years monthly monitoring in lower Sanaga, Cameroon. IOP Conf. Series: Earth and Environmental Science 6, 292021. IOP Publishing.

*Ajonina, G., Tchikangwa, B., Chuyong, G. and Tchamba, M. 2009. The challenges and prospects of developing a community based generalizable method to assess mangrove ecosystems vulnerability and adaptation to climate change impacts: experience from Cameroon. Nature and
Faune (FAO), 24 (1) 16-25.

Ellison, J.C. 2010. Vulnerability of Fiji's mangroves and associated coral reefs to climate change: a Review. Suva, Fiji, WWF South Pacific Regional Programme Office, 55pp.

Ellison, J. C. 2012. Climate Change Vulnerability Assessment and Adaptation Planning for Mangrove Systems. Washington, DC: World Wildlife Fund (WWF).

Ellison, J. and Strickland, P. 2010. Recent Stratigraphy and Pollen Analysis of Lomawai and Kubulau Mangrove Areas, Fiji. Report submitted to WWF South Pacific Regional Programme Office, Suva, Fiji, June 9, 2010, 38pp.

Ellison, J. and Strickland, P. 2010. Stratigraphy and Pollen Analysis of Recent Sediments in the
Douala Estuary, Cameroon. Report submitted to WWF Central Africa Regional Programme Office, Yaounde, Cameroon, May 24, 2010, 24pp.

*Ellison, J.C. and Zouh, I. Vulnerability to Climate Change of Mangroves: Assessment from Cameroon, Central Africa. Biology 2012, 1: 617-638.

Fiu, M., Areki, F., Rounds, I., and Ellison, J. 2010. Assessing vulnerability of coastal mangroves to impacts of climate change: case studies from Fiji. Report. Suva, Fiji, WWF South Pacific Programme, 46pp.

Hansen, J., Hoffman, J., Drews, C. and Mielbrecht, E. 2010. Designing climate smart conservation: Guidance and case studies. Conservation Biology 24 (1), 63-69.

Jenkins, A. P., Jupiter, S. D., Qauqau, I. and Atherton, J. 2010. The importance of ecosystem based
management for conserving aquatic migratory pathways on tropical high islands: a case study from Fiji. Aquatic Conservation: Marine and Freshwater Ecosystems, 20: 224–238. doi:10.1002/aqc.1086

*Mgaya, Y.D. 2004. The vulnerability of mangrove and adjacent coral reefs to climate change in the Rufiji Delta. Literature review submitted to WWF Tanzania Country Office. 31 pp.

Nganje, M. 2004. Building resilience of mangroves and coral reefs to climate change impacts: Cameroon country review. WWF Central Africa Regional Programme Office, Cameroon, 20 pp.

*Obura, D. 2010. Vulnerability and resilience to climate change of coral reefs of Mafia and Songosongo Islands, Tanzania. Turbidity and fisheries as driving forces. Report to WWF Tanzania Country Office. 45 pp.

*Punwong, P., Marchant, R., Selby, K., Kindeketa, W., Lowe, P., Machano, H. and Sima, F. Holocene mangrove dynamics and sea level changes in the Rufiji Delta, Tanzania. University of York, UK and WWF Tanzania. 80 pp.

*Punwong, P., Marchant, R. and Selby, K. 2012. Holocene mangrove dynamics and environmental change in the Rufiji Delta, Tanzania. Vegetation History and Archaeobotany. Springer-Verlag Berlin Heidelberg. 18 pp.

*Rubens, J., Machano, H., Wagner, G. and Obura, D. 2010. GEF/ WWF US Coastal Resilience to Climate Change: Developing a Generalizable Method for Assessing Vulnerability and Adaptation of Mangroves and Associated Coral Reef Ecosystems: Vulnerability Assessment Report, Tanzania, 61 pgs.

Siow, H. 2010. Vulnerability analysis of mangrove ecosystems in Singapore. B.Sc. Honours Thesis, University of Tasmania.

Strickland, P. 2009. Reconstruction of Holocene Relative Sea-Level of Tikina Wai and Kubulau, Fiji, by Pollen Analysis of Mangrove Sediments. B.Sc. Honours thesis, University of Tasmania.

*Wagner, Greg M., and Sallema-Mtui, R. 2010. Change Analysis of Rufiji-Mafia-Kilwa Mangroves, Tanzania, in Relation to Climate Change Factors and Anthropogenic Pressures. WWF: Dar-es-Salaam, Tanzania. 183 pp.

*WWF Tanzania. 2011. Inundation Scenarios for Projected Sea Level Rise in a Selected Area of the Northern Rufiji Delta, Tanzania. 13 pp.

Annex 4.2. Regional and International Meetings where results were presented

Ellison, J.C. 2009. Climate change impacts on, and vulnerability and adaptation of mangrove ecosystems. ASEAN Conference on Biodiversity 2009: Biodiversity in Focus: 2010 and Beyond.
Singapore, October 21-23, 2009. ASEAN Centre for Biodiversity (ACB) and the National Parks
Board (NParks) of Singapore.

Ellison, J.C. 2010. Climate change adaptation in mangrove systems. Climate Adaptation Futures
Conference, Gold Coast, Australia, 29 June-1 July, 2010.http://www.nccarf.edu.au/conference2010/archives/271

Ellison, J.C. and Cook, J. 2010. Mangrove climate change vulnerability and adaptation: Collaborative approaches. Mangroves for the Future 6th Regional Steering Committee Meeting, Cha-Am, Thailand, 26-28 January, 2010.
http://www.mangrovesforthefuture.org/Assets/documents/MFF-eNews-13-Jan-10.pdf

Ellison, J. and Cook, J. 2010. Climate Proofing MFF projects: a briefing paper from WWF. Paper prepared for the Mangroves for the Future 2nd Regional Training Course on Project Cycle Management, Tamil Nadu, India, 4-10 October, 2010, 17pp.

Rubens, J., Ellison, J., Cook, J., Fiu, M. and Tchikangwa, B. 2010. Climate change vulnerability assessment and adaptation in mangrove systems. Paper presented at the International conference “Deltas in Times of Climate Change,” Rotterdam, The Netherlands, 29 September – 1 October 2010.
http://www.climatedeltaconference.org/gfx_content/documents/DELTAS%20ABSTRACTS%2009092010.pdf

Ellison, J.C. 2010. Climate change scenarios and effects on mangrove systems. Mangrove Ecosystems for Climate Change and Livelihood Pre-Inception Workshop, Honiara, Solomon Islands 10-12 February, 2010.

Pan African Symposium on Mangroves and Climate Change in Africa held in Douala from 04 to 05 May 2010 in Douala, sponsored by IDRC (International Development and Research Centre) and Cameroon Minister of Environment and Nature Protection.

WIOMSA regional climate change conference, Mauritius, March 2011. (Tanzania Coordinator).

Annex 5. List of Interviewees and other stakeholders met

(Lead consultant. See Fiji country report for persons interviewed by the Supporting consultant)

Name	Affiliation	Role
NAIROBI (13 – 16 November 2012, lead consultant)		
Sylvana King (sylvana.king@unep.org)	UNEP	Evaluation officer
Esther Mwangi (esther.mwangi@unep.org)	UNEP	Task Manager
Paul Vrontamitis (paul.vrontamitis@uneo.org)	UNEP	Fund Management Officer
Segbedzi Norgbey (segbedzi.norgbey@unep.org)	UNEP	Chief, Evaluation Office
TANZANIA (19 -22 November 2012, lead consultant)		
Jason Rubens (jrubens@wwftz.org)	WWF	Project Coordinator, Tanzania
Haji Machano (haji.machano@gawab.com)	WWF	Assisted with vulnerability assessment
Frank Sima (franksima2004@yahoo.co.uk)	Div. Forestry and Beekeeping	Coordinator, mangrove replanting in Rufiji Delta
Z.D. Mbwambo (mbwambzd@yahoo.com)	Director, Natural Resources Management (Min. Natural Resources and Tourism)	Project Country focal point
Z. Kitale	Div. Forestry and Beekeeping, mangrove manager, Kibiti	Potential user of project results
J. Mahenge (jmahenge@yahoo.com)	Tanzania Coastal Management Partnership (deputy director)	Potential user of project results
T. von Platen-Hallermund (tvonplaten@worldbank.org)	World Bank, Dar es Salaam	Potential user of project results
Representatives of local communities (6 persons)	Rufiji Delta villages	Stakeholders, involved in mangrove replanting
CAMEROON (23- 25 January 2013, lead consultant)		
Bertin Tchikangwa (btchikangwa@gmail.com)	WWF Cameroon (formerly)	Project coordinator, Cameroon
Gordon Ajonina (gnajonina@hotmail.com)	Univ. Douala/CMN	Mangrove expert/project consultant
Gilles Etoga (getoga@wwf.panda.org)	WWF Cameroon	Project executant (WWF Cameroon)
Representatives of local community in Campo (10)		Stakeholders
WWF USA		
Jonathan Cook (skype) (jcook@usaid.gov)	WWF (formerly)	Former Global Coordinator
Shaun Martin (email) (shaun.martin@wwfus.org)	WWF	Former Global Coordinator (last)
Johanna Ellison (skype) (Joanna.Ellison@utas.edu.au)	University of Tasmania	Former Chief Scientist (contracted by WWF)

Annex 6. Fiji Country Report

Terminal Evaluation of the UNEP Project on
"Coastal Resilience to Climate Change: Developing a Generalizable Method for Assessing Vulnerability and Adaptation of Mangroves and Associated Ecosystems"

(Project Number: GEF ID 9092 GFL/2328 - 2712 – 4913 PMS: GF/6010-06-04)

FIJI COUNTRY REPORT

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May 2013

Photo: A. S. Cabanban

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A. Project General Information

Project Title:	Coastal Resilience to Climate Change: Developing a Generalizable Method for Assessing Vulnerability and Adaptation of Mangroves and Associated Ecosystems		
Executing Agency:	UNEP		
Project Partners:	World Wildlife Fund-US		
Geographical Scope:	Multi-country		
Participating Countries:	Cameroon, Tanzania, Fiji		
GEF project ID:	2092	**IMIS number**	GFL / 4913
Focal Area(s):	Biodiversity	**GEF OP #: 4**	
GEF Strategic Priority/Objective:	BD2	**GEF approval date:**	20 Sep 2005
UNEP approval date:	17 May 2006	**First Disbursement:**	19 May 2006
Actual start date:	May 2006	**Planned duration:**	36 months
Intended completion date:	April 2009	**Actual completion date:**	December 2010
Project Type:	MSP	**GEF Allocation:**	USD 975,000
PDF GEF cost:	USD 25,000	**PDF co-financing:**	USD 25,000
Expected MSP/FSP Co-financing:	US$ 1,000,000	**Total Cost:**	US$ 2,000,000
Mid-term review/eval. (planned date):	September, 2008	**Terminal Evaluation (actual date):**	N/A
Mid-term review/eval. (actual date):	April 2009	**No. of revisions:**	One
Date of last Steering Committee meeting:	14-16 June 2009	**Date of last Revision:**	8th August 2008
Disbursement as of 30 June 2009:	US$ 375,325	**Date of financial closure:**	N/A
Total co-financing realized as of 30 June 2009:	USD 1,089,431	**Actual expenditures reported as of 30 June 2009:**	USD 375,325
Leveraged financing[11]:		**Actual expenditures entered in IMIS as of 30 June 2009:**	US$ 375,325

[11] The amount leveraged is not known from Hewlett-Packard Foundation. The funds were used for printing the Manual. The Wildlife Conservation Society provided data on Kubulau in lieu of the cash co-financing.

List of acronyms

ADB	Asian Development Bank
AusAid	Australian Agency for International Development
CBD	Convention on Biological Diversity
CS	Chief Scientist
CTI CRFFS	Coral Triangle Initiative Coral Reefs, Fisheries, and Food Security
EA	Executing Agency
ECP (SSME)	Sulu-Sulawesi Marine Ecoregion Conservation Plan
ELAN	Ecosystems and Livelihoods Adaptation Network
GC	Global Coordinator
GEF	Global Environment Facility
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
IA	Implementing Agency
IUCN	International Union for the Conservation of Nature
MESCAL	Mangrove Ecosystems for Climate Change Adaptation and Livelihoods Project
MFF	Mangrove for the Future
PACC	Pacific Action on Climate Change (Network)
PC/PM	Programme Coordinator/Project Manager
SPREP	Secretariat of the Pacific Regional Environmental Programme
SSME	Sulu-Sulawesi Marine Ecoregion
TM	Task Manager
UNFCCC	United Nations Framework Convention on Climate Change
UNEP	United Nations Environment Programme
USAID	United States Agency for International Development
VA	Vulnerability assessment
WWF-Fiji	World Wide Fund for Nature, Fiji
WWF-SPP	World Wide Fund for Nature, South Pacific Programme
WWF-US	World Wide Fund for Nature, United States

Executive Summary

1. The Global Environment Facility (GEF) approved the project on *"Coastal Resilience: Developing a Generalizable Method for Assessing Vulnerability and Adaptation of Mangroves*[12]" under the Biodiversity Focal Area. The project contributes to Objective OP 2, Coastal, Marine, and Freshwater Ecosystems" (GEF ID 2092) and the Strategic Priority (SP) 4 – Generation and Dissemination of Best Practices. It is also relevant to SP1 – Catalyzing Sustainability of *Protected Areas* and *SP2 – Mainstreaming Biodiversity in Production Landscapes and Sectors.*

2. The Government of Fiji is committed to undertaking biodiversity conservation [Convention on Biological Diversity (CBD)] and to achieving environmental sustainability (Millennium Development Goals). Fiji, at the time of design of the project, was still preparing for its first communication to the United Nations Framework Convention on Climate Change (UNFCCC) in partnership with the South Pacific Regional Environmental Programme (SPREP) on Pacific Islands Climate Change Assistance Programme (PICCAP). The report considered coastal and marine biodiversity is a priority for conservation in Fiji (Fiji Report to the United Nations CBD). The Government of Fiji therefore supported the GEF project as it was consistent with its national priorities (Fiji Strategic Action Plan – 2003 to 2005).

3. The Project is implemented by UNEP and executed by WWF US with WWF Cameroon, WWF Fiji, and WWF Tanzania as partners. This document (Annex 6) reports on the evaluation of activities in Fiji that were executed by WWF-Fiji and WWF South Pacific Programme. The project was executed effectively from 2007 and continued until December 2010, following a one year, no-cost extension.

4. The logical framework was revised in 2009. The desired impact at the end of the project is the ***improved management of mangrove ecosystems to climate change impacts***. The desired global benefit is the increased resistance and resilience to climate change impacts (increase in ecosystem integrity). The expected ***Outcomes*** at the end of the project were:

Outcome 1. Best practices are available for conducting vulnerability assessments and implementing adaptation strategies for mangrove ecosystems; and

Outcome 2. Conservation stakeholders at local, regional, and global levels applying new skills in climate change adaptation.

5. Workplans were prepared in 2008 and revised 2009[13] and most of the planned activities were undertaken that led to the accomplishment of planned ***Outputs***. The ***Outputs*** of ***Outcome 1*** were achieved completely. The report on the vulnerability assessment of mangrove forests in Tikina Wai, Kubulau, and Verata was prepared and published. The adaptation strategy was formulated for T. Wai and Kubulau with stakeholders. The best practices from the activities in Tikina Wai were documented and shared with stakeholders within Fiji, member countries of SPREP, and participating countries of the Mangroves for the Future Initiative. Case studies from Fiji are part of the *Climate change vulnerability assessment and adaptation planning for mangrove systems* published by WWF-US. The ***Outputs*** of ***Outcome 2*** were not completely achieved but the adoption of the Climate Change manual and tool-kit, produced by the medium-sized project, can be attained with the advocacy of WWF-US, within its network.

[12] The complete title in the approved MSP is *"Coastal Resilience: Developing a Generalizable Method for Assessing Vulnerability and Adaptation of Mangroves and Associated Ecosystems"*.
[13] The workplan was prepared according to the original 4 Outcomes in the Project Document.

6. The overall evaluation of the performance of the project in Fiji is ***Satisfactory (S)*** towards achieving the expected ***Outcomes*** and intermediate stages thereby contributing to the desired future impact in the region. The ***Outcomes*** are ***Likely (L)*** to contribute to the improvement in management of mangrove forests (intermediate outcome) and in building resilience to climate change impacts (global impact). A wide range of stakeholders, from villagers, conservation practitioners, resource managers, and policy-makers has more knowledge on the role of mangroves forests in adaptation to climate change impacts, particularly to sea-level rise. The knowledge, lessons, and best-practices have increased capacity of stakeholders and influenced the Republic of Fiji National Climate Change Policy (2012) to address climate change impacts. The Policy incorporates these findings in the conservation of mangrove forests and in the strategy to implement the policy in an integrated manner. The Department of Environment is mandated, under the leadership of the Climate Change Unit, to implement assessment and adaptation and in partnership with line agencies (e.g., Department of Forests, Department of Lands, Fiji Meteorological Services). The integrated approach will enable replication of mangrove forest conservation in Fiji as well as in the South Pacific, because any over-lapping mandates among agencies are set aside towards a common goal (i.e., climate change adaptation). The draft of the National Climate Change Adaptation Strategy for Land-based Resources (2012-2021) also has included mangrove conservation. The World Wide Fund for Nature in Fiji and South Pacific Programme as Partners have begun adapting these lessons by facilitating the establishment of marine protected areas in other sites (e.g., Gau Island, Lau, Ba Province) and in including mangrove forests, seagrass beds, and coral reefs in establishing marine protected areas (MPAs). Several projects, implemented by WWF-Fiji have benefited from the outputs and experiences of the Fiji component of GEF Project. The project "*Strengthening Community Adaptation Measures to Effects of Climate Change in the Fiji Islands*" (WWF-Fiji, funded by AusAid) is an example where mangrove forests conservation are included as part of integrated coastal management to increase resiliency to climate change impacts. The local communities and district officials participated in the vulnerability assessment and in formulating adaptation measures, which inculcated ownership of these measures and consequently encouraged participation in monitoring, beyond the project, of management interventions. The alternative livelihoods that are allowed with management of mangrove forests (e.g., salt-making, eco-tourism) provide incentives to continue management beyond the project. All these are factors that drive the attainment of more mangrove areas placed under improved management in Fiji and in the South Pacific region. The formulation of the Lomaiviti (Province) Natural Resource Management Strategy is an example that considers measures consistent with the climate change policy and biodiversity conservation.

7. The preparation and readiness to execute the project was ***moderately satisfactory (MS)***. This was affected by the poor coordination from WWF-US. The Inception Meeting was conducted without the Task Master of UNEP. This challenge was addressed after the Midterm Evaluation (2009) with the appointment of a new Global Coordinator and the expansion of the role of the Chief Scientist. The project implementation approach (collaborative and participatory in activities; adaptive in administrative aspects) led to the successful conclusion of the project. The execution of the project was ***highly satisfactory (HS)*** in achieving most of the planned outputs, involving stakeholders, and in influencing Fiji National Policy for Climate Change (country ownership and driven-ness).

8. The project objectives and results were attained ***satisfactorily (S)***. Objective 1 was achieved. All the results and the target were attained. Concrete steps were taken in the 2 or 3 project sites to reduce threats of sea-level rise and coastal development on mangroves.
Objective 2 is partially attained. The capacity of local stakeholders in Fiji is strengthened. The target of additional sites for the application of guidelines (100,000 hectares) was not achieved.

9. All the factors (e.g., availability of financial resources, socio-political stability, institutional framework, environmental sustainability) contributing to the sustainability of the project outcomes were rated ***satisfactory (S).*** Republic of Fiji National Climate Change Policy is the implementing tool for the following strategies of the *Peoples' Charter for Change, Peace, and Progress* (2008): Environmental protection, sustainable management and utilization of natural resources; strengthening institutional capacity for environmental management; and strengthening food security. The *Roadmap of democracy and sustainable socio-economic development 2009-2014* is the implementing framework for the Charter. The Climate Change Unit in the Government of Fiji is responsible to deliver the NCCP and the programs under SPREP. The 2 ***Outcomes*** of the Project are relevant to the strategies of the Fiji NCCP and some members of the Climate Change Unit are knowledgeable about these Outcomes (having participated in national consultations) thus it is like that the ***Outcomes*** will be continued in the 2 sites and contribute to improvement of mangrove management and climate change adaptation. LMMA is established in Fiji. Villagers are trained and empowered. Stakeholders (policy-makers, village leaders, researchers) are aware of vulnerability of coastal ecosystems and knowledgeable of adaptation measures. NGOs are welcomed as partners in environmental management in Fiji. National Policy for Climate Change Adaptation was formulated with inputs from the Project. NCCTF coordinates efforts various agencies. The resilience in the mangrove ecosystem by reducing the threats (clearing, cutting, freshwater flooding) will be increased will increasing protection of large tracks of mangrove forests (that are less threatened by sea-level rise). These adaptation measures are put in place only in 2007 and the monitoring data is only limited to two points in time thus it is too early to conclude on whether these measures are enough to combat sea-level rise, which is dependent on the actions of external parties (countries with high carbon emission, causing green-house effects on glaciers). The intensity and frequency of typhoons can have negative effect (sediment loss, death of mangrove seedlings due to freshwater flooding) on gains in the protection of mangroves.

10. GEF/UNEP/WWF SPP has catalyzed behavioral changes, contributed to institutional and policy changes (integration/coordination of efforts of various agencies and stakeholders), contributed to follow-on financing from Australia (AusAid), and created champions (former Project Manager and other staff). The lessons are shared in lessons in Fiji and in the South Pacific (SPREP, PACC) and Southeast and South Asia (MFF, WWF Global Network) and will possibly be taken up by CTI Pacific and CT Southeast Coastal and Marine Resources Management (GEF CTI Program). The project performance for in the catalytic role (and replication) is ***satisfactory (S)***.

11. The supervision and back-stopping of UNEP was also evaluated ***moderately satisfactory (MS)***. The half-yearly report and Project Implementation Reports were used in monitoring progress in execution of activities. The logical framework has been revised and corresponding workplans were prepared. Documentation of logical framework was limited and the delays in approval of workplans were reported. The former has bearing on monitoring and evaluation and the latter has a negative impact on the timeliness of activities in the project site.

12. The following lessons from other projects for successful execution of environmental and development projects were reinforced: i. partnerships among stakeholders, from the policy-makers, donors, to the resource-users during the execution of the project facilitate adoption of biodiversity conservation measures by communities (resource-users) and elimination of barriers in policy; ii. environmental management can be supported by science and can be designed for applicability and utility (*Vulnerability Assessment Methodology and Adaptation Manual*); and iii. adaptive management, both in the administrative and substantive aspects (science, policy), is important in blazing new avenues for policy formulation. The "learning-by-doing" (experiential learning) approach to climate change adaptation is effective in both building capacity and addressing climate change adaptation issues. The specific lessons

from the implementation and execution of the VA and adaptation projects are that on the stringent scientific review of the logical framework and the clear and common understanding of the monitoring and reporting procedures are necessary and important at the outset to avoid delays. The conduct of the planned MTE is crucial to correct mistakes and to allow time to executive any corrective measures. Documentation and coordination are important aspects in project management, monitoring, and evaluation. The engagement of a scientist at the outset of a project, particularly for science-based management, is beneficial.

13. Medium-sized projects of GEF are usually short (usually 3 years) and as such require efficient and effective implementation and execution within the planned duration of the project. It was learned that the stringent scientific review of the logical framework by t the Global Environment Facility (GEF) could avoid loss of time at the inception of the project. The participation of the United Nations Environment Programme (UNEP) at the inception meeting was also found crucial in having a common understanding of the execution and implementation of the project. A common understanding of procedures will lead to better reporting and monitoring of progress and timely disbursement of funds for activities.

14. The manual produced in the project is scientifically-sound and the tools recommended in it can be easily followed by conservation practitioners. It is thus recommended to WWF-US and UNEP to promote the VA and adaptation tool-kit to its network in Southeast Asia, South Asia, and the Caribbean, where the case studies from Fiji are very relevant to Small Island Developing States and archipelagic countries.

15. It is recommended that the Department of Environment, Forestry Department, and other agencies to continue to apply the Vulnerability Adaptation toolkit in Fiji, under the context of the National Action Plan for Adaptation to Climate Change and to share the effectiveness of the measures to communities in Fiji and to the small island states in the Pacific Ocean. This may be undertaken by coordinating with related projects (e.g., GEF ID 3591 – Coastal and Marine Resources Management/ADB RETA 42073-012 – Strengthening Coastal and Marine Resources Management; SPREP Pacific Adaptation to Climate Change; IUCN Mangrove Ecosystems for Climate Change and Livelihood).

Part I. Evaluation Background

A. Context

1. The country of Fiji is an archipelago, composed of approximately 330 low-lying islands, that is vulnerable to the impacts of climate change [Inter-governmental Panel for Climate Change (IPCC) 2005]. The Government of Fiji is a signatory to the United Nations Convention on Biological Diversity (CBD) and United Nations Framework for Climate Change Convention (UNFCC). It is committed to meeting its obligations under these international agreements and also to meeting the Millennium Development Goals (MDG) and the Programme of Action of the Sustainable Development of Small Island Developing States (SIDS; Barbados Plan for SIDS – 1994 to 2004).

2. Fiji, at the time of design of the project, was still preparing for its first communication to the UNFCCC in partnership with the South Pacific Regional Environmental Programme (SPREP) on Pacific Islands Climate Change Assistance Programme (PICCAP). Coastal and marine biodiversity was considered a priority for conservation in the first Fiji Report to the UNCBD. The Government of Fiji has therefore supported the design of the *"Coastal Resilience: Developing a Generalizable Method for Assessing Vulnerability and Adaptation of Mangroves*[14]*"* (GEF ID 2092; Climate Change Project, in short) project as it is consistent with its national priorities (Fiji Strategic Action Plan – 2003 to 2005).

3. The World Wide Fund for Nature (WWF) is a partner in biodiversity conservation in Fiji since 1995, particularly in the activities of the Large Marine Managed Area (LMMA) Network and of the PACC of Secretariat of the Pacific Regional Programme (SPREP). WWF formulated the Climate Change project in consultation with the government with the aim *"to develop new tools for even better environmental projects in the region well into the future as the changing climate becomes a growing challenge".*

4. The Global Environment Facility (GEF) approved the project under the Biodiversity Focal Area for implementation by the United Nations Environment Programme (UNEP). The project on "Coastal *Resilience: Developing a Generalizable Method for Assessing Vulnerability and Adaptation of Mangroves"* contributes to Objective Operation Programme (*OP) 2, Coastal, Marine, and Freshwater Ecosystems"* and the *Strategic Priority (SP) 4 – Generation and Dissemination of Best Practices*. It is also relevant to *SP1 – Catalyzing Sustainability of Protected Areas* and *SP2 – Mainstreaming Biodiversity in Production Landscapes and Sectors.*

B. The Project

5. The Fiji project is part of the global project in *Developing Vulnerability Assessment Methodology for Climate Change and Adaptation Measures Strategy*. WWF Fiji and South Pacific Programme executed the project in Fiji. 6. The overall-arching goal of the project in the three countries is "*to ensure the long-term integrity of globally significant ecosystems by increasing resistance and resilience to climate change*". To achieve this goal, the project will "*build and strengthen the capacity of conservation practitioners to promote effective vulnerability assessment and climate change adaptation projects and policies*". The four (4) components and corresponding expected outcomes[15] were reduced two (2).

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[14] The complete title in the approved MSP is *"Coastal Resilience: Developing a Generalizable Method for Assessing Vulnerability and Adaptation of Mangroves and Associated Ecosystems"*.

[15] ***Outcome 1*****:** Enhanced capacity in the three project countries to perform effective climate change vulnerability assessments;

6. A revision of the logical framework was conducted in 2007 which was approved by the Task Master (TM) and endorsed by the MTE. The goal was revised *to "improve(d) management of mangrove ecosystems to climate change impacts".* The Objectives, Outcomes, Indicators of the project are expanded to two (2) as follows:

Outcomes	Outputs
1. Best practices are available for conducting vulnerability assessments and implementing adaptation strategies for mangrove ecosystems	1.1.1: Vulnerability of mangrove ecosystems in three countries assessed 1.1.2: Adaptation strategies developed and implemented in each country 1.1.3: Project best practices developed and available in an accessible form
2. Conservation stakeholders at local, regional, and global levels applying new skills in climate change adaptation	2.1.1: Local stakeholders in three pilot countries are better equipped to respond to climate change impacts 2.1.2: Regional and global stakeholders use project's new guidelines

The revised logical framework is given in Annex 1 of the main report.

7. The Project was approved by GEF Council in 2006 but the actual start was in 2007. WWF prepared a workplan and budget in 2007 and revised this in 2008 and 2009. The final workplan for Fiji includes the following activities:

Outcome 1 – Vulnerability assessed in project countries
1.1. Inventory of selected mangrove and coral reefs – by Q1, FY2008
1.3 Collaborative assessment process through community engagement and training activities – Q4, FY2008; Q4, FY2009, Q3 and Q4, FY2010
1.4a Develop vulnerability assessment methodology, Q2, FY2007
1.4b, 1.4c Field test vulnerability assessment methodology, including ongoing monitoring against baseline – Q2 and Q4, FY2007, Q2 and Q4, FY2008, Q2 and Q4 FY2009, Q3, FY2010
1.5 Finalize vulnerability assessment in each country (FIJI), Q4, FY2009 to Q4, FY2010

Outcome 2 - Adaptation measures developed and implemented
2.3 Identify adaptation options through stakeholder workshops and other input, Q1, FY2007, Q1, FY2008, Q2 FY2009, and Q2, FY2010

Outcome 2: Development and implementation of climate change adaptation measures within target countries that increase resistance and resilience of target ecosystems and enhance the resource base for local communities;
Outcome 3**:** Decreased barriers to vulnerability assessment and adaptation planning globally;

Outcome 4**:** Established and strengthened opportunities for knowledge sharing and activities related to climate change adaptation at the national, regional, and international levels.

2.4 Formulate adaptation strategy for each country focal area, Q3, FY2008, Q3FY2009, Q3FY2010
2.5.2a Fiji: monitoring restoration activities; compare intact vs. degraded sites for correlation with health and resilience of reefs – Q2-Q4FY2008, Q3-Q4FY2009, Q2-Q3FY2010
2.5.2b Fiji: zoning and potential establishment of marine protected areas - Q2-Q4FY2008, Q3-Q4FY2009, Q2-Q3FY2010
2.5.2c Fiji: improved technology activities - Q2-Q4FY2008, Q3-Q4FY2009, Q2-Q3FY2010

Outcome 3 - Decreased barriers to VA and adaptation planning globally
3.3 Present results at global, regional and national meetings, Q1Fy2008, Q1FY2009, and Q3-Q4FY2010

Outcome 4 - Strengthened opportunities for sharing knowledge about building coastal resilience
4.2 Project results published in leading peer-reviewed journals and other formats (including local media)

C. Evaluation objectives, scope, and methodology

8. The objectives, scope, and methodology for the evaluation of the project are defined by UNEP. The objectives of the evaluation are to assess project performance (in terms of relevance, effectiveness and efficiency) and to determine outcomes and impacts (actual and potential) stemming from the project, including their sustainability.

Purposes

9. The evaluation has a two-fold purpose: 1) to provide (gather) evidence of results to meet accountability requirements; and 2) to promote learning, feedback, and knowledge-sharing through results and lessons learned among UNEP, governments, international and national executing agencies, the GEF and their partners.

10. The evaluation of the Project is based on the revised logical framework (Annex 1, main report) and is limited to the implementation and execution of the Project in Fiji. The evaluation included the review of project documents, progress reports, technical reports (Annex 2), interviews with key project personnel (Annex 3), and a visit to Tikina Wai, Fiji (Annex 4). The evaluation followed the guide questions for each criterion in the ToR and in the context of the results of the Quality of Project Supervision Review 2009 in UNEP of GEF-funded and non-GEF project (Spilsbury et al. 2010).

Part II. Project Performance and Impact

A. Attainment of objectives and planned results

11. Objective 1 was attained in Fiji. The vulnerability assessment method was prepared based on previous knowledge and experience mangrove assessments in the South Pacific (Ellison 2000, 2004). Trainings with Vulnerability assessments were conducted in 3 sites (Tikina Wai, Kubulau, and Verata) but adaptation measures were formulated and applied only in two sites (T. Wai and Kubulau) due to socio-political challenges in Verata. The guidelines were published (in English only; no French version) and shared to stakeholders in Fiji, SPREP, WWF, MFF-IUCN. Concrete steps were taken in the 2 or 3 project sites to reduce threats of sea-level rise and coastal development on mangroves.

12. Objective 2 is partially attained. The capacity of local stakeholders in Fiji is strengthened. More than 20 villagers were trained to monitor ecosystem health. The

participation of stakeholders in the vulnerability assessments and consultations for adaptation measures provided opportunity to raise knowledge and awareness on vulnerability and adaptation to climate change impacts. There was no survey of level of knowledge and understanding to be able to state that 66 % of participants have better knowledge on climate change. WWF-Indonesia and WWF-Philippines expressed interest to use guidelines in climate change adaptation projects. Potential area of cover in WWF-Philippines is 80km coastline. The target of 100,000 hectares was not achieved.

Rating – Satisfactory (S)

Achievement of Outputs and Activities

13. ***Component 1*** - All the planned activities were undertaken and the expected outputs were achieved (Annex 1). The expected ***Outputs*** were:

1.1.1. vulnerability of mangrove ecosystems assessed (in Fiji);

1.1.2. adaptation strategies developed and implemented (in Fiji); and

1.1.3. proposed best practices developed and available in an accessible form."

Most of the planned activities were conducted and led to the achievement of all the expected ***Outputs***, namely:

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- vulnerability assessment report (Fiu et al.. 2010);
- adaptation strategy (reported in the Terminal Technical Report and in Vulnerability Assessment Manual;); and
- best practices available in accessible form: training tool; scientific articles (WWF brochures; Strickland, 2009; Fiu et al.., 2010; Ellison, J. C. 2010; Ellison, J. and P. Strickland. 2010; Jenkins et al.. 2010; Siow, H. 2010)

14. The best practices were made available to member countries of SPREP through presentations and through on-site training in T. Wai. The best practices were also presented to the member countries of MFF in a training program.

Component 2 – Conservation stakeholders at local, regional, and global levels applying new skills in climate change adaptation

Output 2.1: local stakeholders are better equipped to respond to climate change impacts

15. All but one of the activities was conducted under this Component (Annex 1). There was no baseline and end-of-project survey conducted on the level of understanding and awareness of stakeholders on climate vulnerability and adaptation measures thus it is not possible to know whether the quantitative target was achieved (66 % of surveyed stakeholders demonstrate understanding of vulnerability and adaptation).

16. The project however conducted stakeholder consultations, trainings, collaborative assessment and workshops. More than 20 persons from the villages were trained to monitor ecosystem health. It is believed that through these activities the stakeholders have gained capacity to respond to climate change impacts.

Output 2.2. Regional and global stakeholders use project's new guidelines

17. The planned output was for the use of the project guidelines in at least two (2) sites in the WWF network whose global focus in addressing this threat in the coastal and marine environment is to study the vulnerability of forests to climate change and explore ways for adaptation and to protect coral reefs in the Coral Triangle for building resilience against bleaching events, and to restore mangrove forests in Coastal East Africa for buffering shorelines from storm erosion (http://www. http://worldwildlife.org/threats/climate-change). The case studies and guidelines from Fiji are useful in its global program.

18. The vulnerability assessment and adaptation manual was published and only available in April 2012 in the WWF network and so more promotion is needed to make it known to offices in Southeast and South Asia and to the countries implementing the Coral Triangle Initiative (that are closest to Fiji). The guidelines were presented (as this was still under development) in teleconferences with partners of the project and participants from the WWF Network. WWF offices in India, Pakistan, Philippines, and Vietnam have expressed interest to adapt the manual. These offices have current programs on climate change with funding from members of the European Commission and have prepared drafts and published reports (WWF India and Pakistan) but have not referred to the global report (containing case studies from Fiji). WWF Philippines is currently implementing a: Climate Change Adaptation Project in an eighty (80) km stretch (no area available) of coastline in Sablayan Municipality, Mindoro Occidental that is aimed at building the resilience of coastal communities and the marine ecosystems of the Apo Reef Natural Park for long-term climate change adaptation, applying the protection of biodiversity such as improving controls over protected areas, and assisting in the rehabilitation of mangroves (http://www.org.ph[16]). These are similar measures that were applied in Fiji sites. The manual is used as reference in this project (Baskinas, pers. comm., February 2013). WWF Viet Nam and Mangrove for the Future (IUCN) implement coastal and management tools in appropriate sites in the country (no known area coved by the project).

19. WWF-India implements field projects which study the potential impacts of Climate Change on our vulnerable ecosystems in ecoregions like the Sundarbans and the Himalayas. The programme is also working with a diverse range of stakeholders to develop and implement adaptation strategies to build the resilience of ecosystems and communities[17]. Recent publications with WWF India and Bangladesh (Climate-change adaptation: Background and Experience in Bangladesh 2012; http://www.pak/cca) and a Community-based vulnerability assessment (draft) did not refer to the VA Manual (Ellison 2010). The VA manual therefore needs to be promoted more in the WWF network.

20. The outputs were produced in a timely manner as a contribution to the formulation of a global generalizable methodology for vulnerability assessment, for the preparation of adaptation measures in the project sites in Fiji, for the advocacy to national policy-makers in Fiji, and for the dissemination of knowledge and experience in the South Pacific, Coral Triangle region, and other tropical regions (where mangrove forests are found). The vulnerability assessment report is of high quality. It used the available data and information on coastal ecosystems within WWF and WCS and meteorology in the Fiji Meteorological Agency. Several training sessions were conducted to introduce the methodology to assess methodology (see Progress Reports). [The monitoring of vulnerability of mangroves (from sedimentation) in both protected and unprotected sites are continuing (observed during the site visit).]

[16] Partnerships: Department of Environment, Non-governmental Organizations

[17] http://www.wwfindia.org/about_wwf/reducing_footprint/climate_change_and_energy/solution/adaptation_and_impacts

21. The adaptation strategy for Fiji was prepared in consultation with stakeholders and applied in pilot sites (Project Reports and site visit interviews). The 3 strategies adapted were: strengthening the LMMA, establishing MPAs and livelihood diversification (ecotourism), and planting of "climate smart" (highly tolerant to high salinity) species of mangroves were tested. The appropriate and acceptable adaptation was applied in the 3 sites and the monitoring of the impact of the strategy is continuing with the support of scientists and community-members.

22. The best practices were developed, documented, and made available in accessible and appropriate formats for different audiences. Several case studies and examples were contributed by the Fiji sites towards the global output, i.e., the vulnerability assessment manual (Ellison, 2012). The training tool was prepared. The results of the assessments were adaptation (monitoring data) were published and popular media (newspapers, posters for local community) and presented in regional and global meetings. Dissemination of knowledge and lessons learned from assessment and adaptation was conducted at local, national, and regional levels, resulting to an increased awareness of adaptation strategies. Various media were used that were appropriate for the audiences (e.g., poster, blog-spot, newspaper articles, seminars). WWF-South Pacific shared information to SPREP, the Ecosystmem-based Adaptation programm, and the Mangrove for the Future Initiative of IUCN that have respective networks.

Rating – Highly Satisfactory (S)

Relevance

23. Science-based development of methodology for assessment, participatory development of adaptation measures and monitoring activities with community members, and awareness-raising using appropriate media) are approaches that are relevant and consistent with national policies and international commitments [e.g., GEF Operational Objectives for Biodiversity (ecosystem), International Waters Focal Areas Objectives, Climate Change Adaptation Programme, and UNEP's Programme of Work for Climate Change Adaptation (under the Convention on Biological Diversity)]. The objectives and the implementation strategies of the project are specifically relevant to the following:

- cross-cutting theme on biodiversity and climate change of the United Nations Convention on Biological Diversity;
- Objective 4 of the United Nations Framework on Climate Change;
- Pacific Island Climate Change Action Program (PICCAP) of the Secretariat of the Pacific Regional Environment Programme (SPREP);
- Programme of Action for the Sustainable Development of Small Island Developing States (Mauritius Strategy – 2005 – 2015; *"c) increase efforts related to capacity-building to address the threat to climate change, including vulnerability assessment and adaptation-planning"* and the
- Pacific Adaptation to Climate Change (PACC) Network action plans.

24. The "no-regrets" strategy is consistent with the objectives to improve sustainability of protected area systems and to increase resilience to climate change through both immediate and longer-term adaptation measures in development policies, plans, programs, projects, and actions. The project is relevant to the Fiji National Climate Change Adaptation Policy. The project has addressed the lack of capacity to undertake vulnerability assessment that had been reported in a communication to UNFCC (Vanualailai 2008).

25. The project moreover builds on (Gilman et al., 2006):

- SPREP's Pacific Islands Climate Change Assistance Program (GEF ID; 1997-2000) – assist countries that ratified the UN Framework Climate Change Convention; assistance in reporting, training, capacity-building, and vulnerability assessment to CC. The Project produced "Adapting to Climate Change: Incorporating Climate Change Adaptation into Development Activities in Pacific Island Countries: A Set of Guidelines for Policymakers and Development Planners," (South Pacific Regional Environment Programme, 2000). The guidelines incorporated presents general guidelines for Pacific Island governments to incorporate considerations of sea level and climate change into new development planning.
- Regional Wetlands Action Plan for the Pacific Islands (South Pacific Regional Environment Programme, 1999b)
- "Capacity Building for the Development of Adaptation Measures in Pacific Island Countries," in the Cook Islands, Fiji, Samoa, and Vanuatu from 2002-2005
- Pacific Islands Climate Change Assistance Programme (PICCAP) received financial assistance from UNDP through the Enabling Activities of the GEF (1998)

Rating – Highly Satisfactory (HS)

Effectiveness

26. The project in Fiji has achieved successfully the objective to build and strengthen conservation practitioners to promote effective vulnerability assessment and climate change adaptation project and policies. The target was reached, at the end of the project, for key stakeholders to have applied the assessment in three sites (Tikina Wai, Kabulau, Verata) and adaptation strategy in two sites (except Verata). The national government has also adapted the findings and recommendations from the field into the National Policy on Climate Change Adaptation.

27. The VA Manual has contributions from the Fiji Demonstration Sites in every step of the methodology as such the Fiji portion of the project might have effectiveness in other geographic areas that it will be applied. The Chief Scientist and the Project Manager of Fiji have also presented the methodology at forums in the South Pacific and Southeast Asia. The vulnerability assessment methodology and adaptation strategy have been adapted by SPREP and the countries that are signatories to the Regional Programme. The Fiji pilot sites are potential study sites for Indonesia and the Philippines but practitioners[18] in these countries are not aware of the outputs of the project[19]. Some practitioners from Indonesia and eight (8)[20] other countries in the MFF are more equipped as a result of collaboration in a technical workshop. The MFF programme of work is implemented at local sites and with local communities (http://www.mangrovesforthefuture.org).

Rating – Satisfactory (S)

Efficiency

28. The project was executed cost-effectively. It used existing data and information from the sites that we were gathered in previous projects by WCS and WWF. It also used information from existing database (http://www.reefbase.org) and long-term data-sets from the Meteorology Department. The numerous teleconferences conducted by the Global Coordinator, within the WWF Network, was another way to gather knowledge and experience for the development of the methodology[21]. The project engaged a Senior Lecturer from the University of Tasmania, who has had a previous experience in Fiji and

[18] Mainly WWF Indonesia, WWF Philippines, WWF-Asian Development Bank
[19] WWF Staff interviewed: Dr. Lida Pet-Soede (Indonesia); Ms. Luz Baskinas (Philippines)
[20] Bangladesh, India, Maldives, Pakistan, Seychelles, Sri Lanka, Thailand, Vietnam
[21] Pers. Comm., J. Ellison; also reported in progress reports

brought with her the linkages to technology from her University. The project worked with informal networks in Fiji as well as established networks (LMMA, SPREP, MFF) rather than establishing new ones for disseminating outputs. The project worked with villagers and community members for monitoring of impacts of climate change or adaptation measures. A dive shop[22] monitors the state of the coral reef and key indicators while community members monitor the mangrove sites. The project staff participates in national consultations and a workshop, organized by the Department of Environment, and in so doing the project was able to influence the policy formulation for climate change.

29. The timeliness in project execution was affected by delays in the availability of funds at the beginning of the project (expected start in 2006) and in the appointment of the Chief Scientist. An extension to December 2010 was necessary for this reason. These delays did not affect, however, the quantity and the quality of the outputs (see above).

Rating – Highly Satisfactory (HS)

Review of Outcomes to Impacts (ROtI)

30. All the activities were conducted to achieve three ***Outputs*** and to achieve ***Outcome 1.1*** at the end of the project in Fiji (Figure 1 – see Main Report). The vulnerability of 3 mangrove sites in Kubulau, Tikina Wai, and Verata to climate change impacts was conducted with trained community members and project staff. The results of the assessment were analyzed and presented to the stakeholders ***(Output 1.1.1)*** and these served as the bases for formulating ecologically appropriate and socially acceptable adaptation measures ***(Output 1.1.2)***. The collaborative and participatory approach between technical staff and local community has provided opportunities from which to learn lessons or best-practices. The findings and best-practices generated from the conduct of activities were documented and shared to a wider audience ***(Output 1.1.3).*** The best-practices and technical inputs were available in the appropriate medium and shared ***(Outcome 1.1)*** in national consultations towards the formulation of the Fiji National Policy for Climate Change Adaptation, Integrated Coastal Management Framework, and National Disaster Management Office Strategic Action Plan, at regional meetings and trainings organized under SPREP, and at the global level through in the WWF Network and IUCN Programs (ELAN, MFF). This ***Outcome (1.1)*** contributes to the improvement in management of mangroves (spatial planning, management by officials at the district level and closer to communities) to build resistance to climate impacts ***(Impact)***, particularly sea level rise in Fiji.

31. Concrete steps to reduce sources of vulnerability of mangroves from sea-level rise and unplanned coastal development ***(Target, Objective 1 (Component 1)*** were put in place and achieved at the end of the project. Networks of MPAs and collaboration with communities to establish mangrove protected areas and diversify livelihoods were implemented by community stakeholders in T. Wai and Kubulau mangrove sites (where adaptation measures were agreed upon by community members; there was no adaptation measure put in place in Verata site due to socio-political challenges). The risk towards achieving the ***Outcome (1.1)*** and attaining the target was overcome by the project by collaborating with national agencies to monitor sea-level rise and employing with the community low-cost technology (stakes, transect lines) to monitor sedimentation rates on mangroves (which are beneficial to growth of mangroves).

32. All but one of the planned activities toward attainment of ***Outcomes 2.1 and 2.2*** in the revised logical framework were conducted in the three pilot sites in Fiji. The survey of the

[22] SCUBA Bula (Mr. Adam Hewlitt)

level of understanding and awareness of project participants on vulnerability and adaptation to climate change before (baseline) and at the end of the project was not done. The quantitative target of 66 % of participants demonstrating understanding of these subjects therefore cannot be reported. The project however has qualitatively achieved the ***Output (2.1)*** by engaging the participants in the conduct of the vulnerability assessment and formulation of the appropriate adaptation measure. The consultations, trainings, and workshops have resulted to more than 20 villagers who have now the understanding and experience and capacity South Pacific (Term. Tech. Rept.; see also Table – summary of activities and outputs).

33. Regional and global stakeholders use to some extent the guidelines to conduct vulnerability assessment and adaptation ***(Output 2.2).*** The Project Coordinator (PC) and scientific consultants presented the guidelines or parts of manual to resource managers and government officials in Fiji and member countries of the South Pacific. The PC and the Chief Scientist also presented in international meetings and workshops, when the opportunity arose. The Mangrove for the Future Project and ELAN of IUCN has provided a platform for the promotion of the guidelines to 12 countries in Southeast Asia and South Asia. The teleconferences within WWF (coordinated by the Global Coordinator) to review the guidelines was also considered a platform to promote the guidelines and the completed manual to the WWF Network (Ellison, pers. com., November 2012). More promotion of the completed manual is however needed through the WWF Threat (Climate Change) and Places (Coral Triangle) Programs. WWF India and WWF Pakistan have on on-going climate change programs and have drafted reports in 2012 but have not referred to the guidelines.

34. The target for the application of the guidelines was 100,000 hectares of additional coastal areas (covered with mangroves and associated ecosystems). WWW-Philippines had expressed interest in using the guidelines in the GIZ-funded climate change adaptation project in an 80-km coastline in Sablayan Municipality, Occidental Mindoro (facing the West Philippine Sea and South China Sea). The MFF Project in Vietnam has no available report on the area that the CCA guidelines are applied. The ***Output (2.2.)*** was not completely met; the target was not met in Indonesia and Philippines – countries that (were identified in the monitoring and evaluation plan) that have mangroves and have enabling legislations and conservation programs [Comprehensive Action Plans for Marine Protected Areas and Networks, Sulu-Sulawesi Marine Ecoregion (SSME) and MPAs Effectively Managed (Goal 3, Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security (CTI CRFFS].

35. The ***Outcome 2*** for Objective 2 was not fully achieved but nonetheless the knowledge and lessons learned in Fiji contributed to the impact (Figure 1, main report). The vulnerability assessment of all sites in Fiji was conducted and reported and the wide community of policy-makers, researchers, and villagers has understood the vulnerability of mangrove forests (based on interviews). A core group of national and local stakeholders has gained knowledge and experience in vulnerability assessment and adaptation measures (Target, Component 1). Adaptation plans and policy recommendations were developed on adaptation measures were prepared and adapted by the local villagers (e.g., Tikina Wai, Kabulau) and the national policy makers. The adaptation strategies were implemented at the local level (Target, Component 2). A vulnerability assessment methodology (Ellison et al. 2010) was prepared in Fiji and stakeholders were able to apply the methodology in other parts of the country. The appropriate and best practice for vulnerability assessment and adaptations plans were disseminated through various media to local, national, and regional (South Pacific) audiences.

Rating – Likely (L)

B. Sustainability and catalytic role

Socio-political sustainability

36. There are positive socio-political developments that will lead to the catalytic role of the project for more vulnerability assessments in the South Pacific and in Southeast Asia. The LMMA approach is consistent with the culture of the Fijians where natural resources, such as fishing grounds (*qoliqoli*) are managed and shared by the community. This cultural practice is also encouraged in mangrove conservation, especially in T. Wai, where the community shares the economic benefits of the salt-making and eco-tourism in the mangrove forest as well as the responsibility to protect the forest and monitor of indicators. Government of Fiji has formulated its National Strategy for Climate Change Adaptation and it participates actively as a member of the Pacific Action for Climate Change and as a member of the SIDS in regional and global discussions (Doha Conference, 2012; http://www.unep.org).

37. Investments from this project and from other multilateral [GEF/ADB Coral Triangle Initiative – Pacific: Coastal and Marine Resources Management (CMRM, GEF ID 3591); GEF through UNDP – Ridge-to-Reef project, (under development; pers. comm. Dr. Clive Wilkinson, December 2012) and bilateral donors (AusAid – WWF Fiji) support the implementation of management strategies that are consistent with adaptation measures. The CTI Pacific – CMRM Project has a component on climate change adaptation and is implemented in Fiji, Papua New Guinea, Solomon Islands, and Vanuatu in the Pacific (GEF-Pacific Alliance for Sustainability) from 2010 to 2014. Several large-scale regional management frameworks such as the SPREP PACC and Ecosystem-based Adaptation and CTI CRFFS[23] Goal 4 on Climate Change Adaptation Measures Achieved in the Regional Plan of Action that can contribute to the strengthening of the LMMA movement in Fiji through public awareness campaigns, trainings, protection plans, and some extent livelihood development. The villagers are empowered to question large-scale developments along mangrove areas (according to the PC during the interview in December 2012) and are educated continually by current and future projects.

38. Partnerships with NGOs are desired in environmental management in Fiji. WWF has complemented marine biodiversity conservation by planning for Fiji Islands Marine Conservation Plan (WWF Fiji) which complements the LMMA efforts in Fiji. The WCS conducts scientific investigation for management and use findings for public awareness campaigns (Verata and other localities; http://www.wcs.org). The IUCN is supporting Fiji in meeting its commitments to CBD (e.g., Mangrove Ecosystems for Climate Change Adaptation and Livelihoods Project Mangrove, Ecosystem and Livelihoods Action Network) in partnerships with other NGOs. As a result, stakeholders (policy-makers, researchers, village leaders, community members) are aware of vulnerability of coastal ecosystems and knowledgeable of adaptation measures and are empowered to act.

Rating – Satisfactory (S)

Financial resources

39. The financial resources to replicate the achievements of the project are potentially available from the national budget. The NP CCA is aligned to the Roadmap for democracy and Sustainable Socio-economic Development 2009-2014. The Republic of Fiji National Climate Change Policy is the implementing tool for the following strategies of the Peoples' Charter for Change, Peace, and Progress (2008): Environmental protection, sustainable management and utilization of natural resources; strengthening institutional capacity for

[23] endorsed by the Governments of Papua New Guinea, Solomon Islands, Timor-Leste

environmental management; and strengthening food security. The Roadmap of Democracy and Sustainable Socio-economic Development 2009-2014 is the implementing framework for the Charter. The Climate Change Unit in the Government of Fiji is responsible to deliver the NCCP and the programs under SPREP. The 2 ***Outcomes*** of the project are relevant to the strategies of the Fiji NCCP and are known to some members of the Climate Change Unit (having participated in national consultations) thus it is likely that the ***Outcomes*** will be continued in the 2 sites and expected to contribute to the improvement of mangrove management and climate change adaptation.

40. Grants from bilateral and multilateral donors and under regional and global initiatives [e.g., CTI CRFFS, CTI Pacific CRRM (GEF ID Project)] are the other sources of funding for the ***Outcomes***. The Australian Government is funding a project to integrate management of watershed areas and rivers in order to reduce threats on downstream mangrove forests and build its resiliency.

Rating – Satisfactory (S)

Institutional framework

41. The sustainability of the results of the project is equally dependent with institutional framework and governance structures. The institutional framework is necessary because mangrove forests are managed by the Forestry Department while the establishment of marine protected areas or spatial planning is under the Department of Environment. The Government has addressed the need to integrate and coordinate efforts by creating the National Climate Change Country Team (NCCTM), which is composed of representatives from various agencies. The role of stakeholders and partners is necessary and important in the implementation of the Policy. The Strategic Partnerships among these parties is one of the guiding principles in the Policy.

42. The project did not aim to produce these as ***Outputs*** however the project has contributed to building of the foundation of sustainability. The National Policy for Climate Change Adaptation was formulated with inputs from the Project during the consultative process. In the implementation of the NP CCA, the National Climate Change Task Force (NCCTF) coordinates efforts various agencies, stakeholders (including WWF, WCS), and the conservationists who were trained in VA and adaptation planning. The project continues to contribute to the institution-building. (Please see also comments under financial resources.)

Rating – Satisfactory (S)

Environmental sustainability

43. The resilience in the mangrove ecosystem is being built by reducing the threats (clearing, cutting, freshwater flooding) and increasing protection of large tracks of mangrove forests (that are less threatened by sea-level rise). These adaptation measures are put in place only in 2007 and the monitoring data is only limited to two points in time. It is difficult to ascertain that the imputed resilience of mangrove forests, seagrass beds, and coral reefs since this requires long-term monitoring. It is too early to conclude on whether these measures are enough to combat sea-level rise, which is dependent on the actions of external parties (countries with high carbon emission, causing green-house effects on glaciers). In addition, the prediction on sea-level rise has variability and it could be faster than the growth for mangrove forests. The intensity and frequency of cyclones can have negative effect (sediment loss, death of mangrove seedlings due to freshwater flooding) on gains in the protection of mangroves. The other uncertainty is the economic pressure to clear areas for tourism infrastructure but it is assumed that establishment of protected areas will be respected and protected by the local district and villagers.

44. The GEF/UNEP/WWF SPP catalyzed behavioral changes, contributed to institutional and policy changes (integration/coordination of efforts of various agencies and stakeholders), contributed to follow-on financing from Australia (AusAid), and developed champions (former Project Manager and other staff). There are many lessons and recommendations emanating from the project (Technical Terminal Report). It is likely to be replicated in a larger scale in the South Pacific countries under the SPREP PACC, CTI Pacific and Southeast Asia projects, MFF, and the WWF Climate Change Program. It is assumed that executing agencies are open to use the Manual and that WWF-US and WWF-Fiji will promote actively the methodology to other partners working in Southeast Asia.

45. The outputs of the project have already been used in other sites in Fiji. The success of the planting of "climate-smart species" has been shared with a mangrove reforestation project in another locality in Fiji (USP). WWF-South Pacific Programme built on the findings that the mangrove forest in Tikina Wai is important for Fiji. A project to reduce impacts of watershed activities on mangrove forests and adjacent ecosystems is being undertaken with funding from AusAid (WWF Fiji).

Rating – Satisfactory (S)

C. Processes affecting attainment of project results

C.1. Preparation and readiness

46. The executing agency was not completely prepared and ready to start the project. The objective of the project was clear however two components have outcomes that cannot be achieved or are risky to attain within the duration of the project. The increased resistance and resilience ***(Outcome 2)*** of mangrove forests in the 3 demonstration sites cannot be achieved; instead, best practices in management or resource use can only lay down the foundation for building resistance and resilience to climate change impacts. The length of time needed for project preparation and organization is one factor that affects the attainment of project results. The inception of the project takes at least 6 months due to the preparations (e.g., orientation, contracting) needed for the actual implementation and execution of the project. The length of time needed to consult and work with stakeholders and the inherent time needed to undertake the actual work (i.e., vulnerability assessment and adaptation measures in 3 sites in Fiji) are the other important considerations. Another 6 months will be needed to prepare the stakeholders in the country and in the demonstration sites. It will be in the second year of project execution when activities can begin towards the preparation of the vulnerability assessment method, the actual assessment and analysis, and the presentation of results to the stakeholders. The adaptation measures can then (in the third year) be prepared in consultation and applied with the stakeholders. Therefore, it will require another 12 months to prepare a methodology that is applicable globally, based on the knowledge and experience in Fiji and the two other countries, and to prepare the manual and the planned publications. The time needed for each of the steps were underestimated in the design of the project and is partly the reason that WWF-US had to request twice for a no-cost extension (to December 2010). The length of time involved in publishing in peer-reviewed journals is one factor that also determines the attainment of one of the targets at the end of the project (***Outcome 2***). The scientific manuscript on the vulnerability assessment is still under the review process at the time of the terminal evaluation.

47. The Project was developed by WWF-US in consultation with WWF-Fiji and the South Pacific Programme (and other Country Offices). The partnership arrangements were identified and described between UNEP (Implementing Agency) and WWF-US (Executing Agency). WWF is an international environmental organization with offices and programs in

Fiji (and the 2 other countries) and the evaluation of its capacity to properly execute the project was limited to the specific needs of the project. A Global Coordinator, Scientist, Vulnerability Assessor, and Country Coordinators at the outset and the roles and responsibilities were clearly laid out however it was still necessary for UNEP to provide additional description of the role of the Global Coordinator and the Chief Scientist. The counterpart financing from the Wildlife Conservation Society (WCS, Fiji) was no longer available at the start of the project. The intended co-financing had been used for the profiling the mangrove forest and resource uses in Kubulau, while anticipating for the actual start of the project. This was however not detrimental because the results of the environmental project in Kubulau by WCS were made available and useful in the preparation of the vulnerability assessment methodology in Fiji. Counterpart facilities, resources, and enabling laws are also available for activities in the project.

48. Project management arrangements were in place in the design of the project but there were 12 months when management was absent, with the replacement of the Global Coordinator (GC, WWF-US). The global coordination was effective from 2007 to the end of the project following the expansion of the role of the CS and the appointment of an effective GC (as recommended by the Mid-term Evaluation of the project). There was also a change in the Task Master at UNEP/GEF during the project implementation.

49. There is no available reference on the adaption of lessons from other projects in the design of the project however from the available information it is implicit that the design was influenced by lessons in working with resource users, as important partners in conservation of natural resources, from past projects such as:

- Socio-economic assessments of villages within Tikina Wai, Nadroga (WWF Fiji Programme, 2002):
- Rapid assessment of the coral reef resources of the Tikina Wai *Qoliqoli* – traditional fishing ground (Afzal et al., 2002);
- Large Marine Managed Areas - mainstreaming resource conservation (Veitayaki et al., 2003); and
- Socio-economic baseline survey of Odiqoli Cokovata Area Districts of Malia, Dreketi, Sasa, and Macuata, Vanua Levu in 2006 (Bolabola, 2007).

50. The availability of findings from international and national projects and the choice of WCS as a partner, and the availability of resources influenced the quality-at-entry of the project design (e.g., International Panel in Climate Change; the Scientific Body on Scientific and Technical and Technological Advice findings; scientific literature; related activities of NGOs – TNC Coral Reef Resilience; WWF – South Pacific Ecoregional Programme). The WCS is another international environmental organization that has a good reputation for science-based management, and the history of WCS in Fiji was beneficial to the project (see paragraph 21). Funds were appropriately allocated to the 3 WWF Country Partners for the execution of activities.

Rating – MS

C.2. Implementation approach and management

51. The implementation approach was collaborative and participatory in Fiji. The project worked with members of the Fiji LMMA Network and engaged stakeholders at the pilot sites in the vulnerability assessment, identification of the adaptation measures, and the piloting of adaptation measures and monitoring of its effectiveness. The collaborative and participatory approach led to influencing national policy on climate change adaptation and building regional (South Pacific) and local (LMMAs) capacity to apply the vulnerability assessment method and adaptation formulation. The project management mechanisms was

not followed closely at the start of the project but was eventually followed after the MTE and the Project Manager was able to participate in global discussions that were organized by the Global Coordinator. The Project Manager furthermore was successful in coordinating national and regional activities with partners (see Par. 21). WWF-South Pacific Programme was also flexible to adapt to the delays in the implementation by retaining the Project Manager, availing of the results of WCS, and developing a feasible work plan with sequential activities with the Chief Scientist.

52. There were operational problems within the WWF coordination (which was discussed two-thirds into the project execution). This was resolved with the appointment and allocation of more time of the Global Coordinator and the revision of the role of the Chief Scientist (ToR – to include integration of Fiji and other country outputs and reports). There were also delays on the feedback from the TM, UNEP on the proposed work plan, including those for Fiji that was submitted by the Chief Scientist. This was possibly due to the change of Task Masters assigned to the project at UNEP/GEF. WWF-South Pacific focused on compiling the environmental and socio-economic profiles of the 3 sites and promoting the project while waiting for approval of the work plan and budget. (These activities were not dependent on the approval of the work plan and budget.)

53. WWF-South Pacific Programme responded fully to the recommendations that UNEP-GEF put forward in the PIRs and by the Steering Committee (Global Advisory Group, Coordinative Committee) through the tele-conferences organized by the Global Coordinator from 2009 to 2010. The recommendations from the MTR were also transmitted from WWF-US to WWF-South Pacific Programme and were followed in the revision of the logical framework and work plans.

Rating – Satisfactory (S)

C.3. Stakeholder Participation and Public Awareness

54. The institutional stakeholders (USP, LMMA, DoE, FD, and MD) and community members of the Fiji at the design and implementation of the project were approached according to their mandates and missions in Fiji. This approach builds on the shared goal (among the stakeholders) for conservation of biodiversity and ecosystem services, engenders cooperative spirit in addressing issues that need integration of various actions, and learning-by-doing the step-wise process to assess vulnerability, develop appropriate adaptation measure, and implement the adaptation measure. This approach however takes time but the benefits are long-term behavioral change and societal commitment. This approach is thus better than contracting individuals to prepare the VA method and adaptation strategy which would be faster but may not be acceptable and useful to the villagers in the pilot sites. The approach of the project was successful, having gained the cooperation of the people to monitor the site (e.g., sedimentation rate, seasonality of flowering).

55. The public awareness campaign was effective in Fiji because it used various media to reach different stakeholders. Posters were prepared for villagers while leaflets, newspaper articles, and blogs were prepared for the general public and policy-makers. Seminars were given to government officers and conservationists. There was no formal assessment of the commitment of the stakeholders as a result of the public awareness campaign (no before-and-after assessment of public awareness) in ***Component 2*** of the project.

56. The activities in the project have engaged the communities in working towards the expected outputs of the project. The report of the vulnerability assessment was based on the application of the method with community members in the 3 sites. The adaptation strategy was arrived at after consultations with the stakeholders. The dissemination of the

assessment and monitoring results were done at community meetings and in national and international meetings (e.g., SPREP, MFF).

Rating – Highly Satisfactory

C.4. Country Ownership and Driven-ness[24]

57. Fiji has supported the WWF proposal to GEF as it was relevant to national policies and international commitments (see Relevance section; par. 24-26). The country showed interest and cooperation in the project by allowing officers in the Department of Meteorology, Forestry Department, and Department of Environment to participate in the activities of the project. The Meteorology Department (MD) shared data and expertise in analysis of trends of sea levels in Fiji. Government officers also participated in the development of the VA methodology and in the formulation and application of the adaptation measures in the sites. This cooperation between the government and the staff of the project was possible because of the work of WWF in the decade (since 1995) prior to the project.

58. The socio-political environment was conducive for the execution and performance of the project. The national government has adapted the findings and recommendations of the project in its NPCC and its position in the global conferences on CC (e.g., Doha Conference in 2012). The local district government has taken over the project (particularly the cooperation with the villagers to protect mangrove forests from clearing for large infrastructure development. This was achieved because of the long-term presence and conservation work of WWF and WCS in T. Wai and Kubulau. (Please see also comments in financial resources and catalytic role.)

59. The government is not required to provide co-financing in the project but it has contributed data (sea-level measurements from the MD) and the time and expertise of government officers to participate in national consultations and meetings towards the two major outputs. The government has adapted the outputs of the project and incorporated this in their National Policy for Climate Change Adaptation.

60. The Government of Fiji is amenable and supportive of the project and the country is conducive for community-based management. There was a need in Fiji to explore land-based resources such as mangrove forests as an adaptation strategy to climate change impacts. The Government had passed enabling legislation and commitments to regional agreements (SPREP) and had willingness to work with non-governmental organizations (e.g., WWF, WCS, LLMA Network). Decentralization of jurisdiction over the mangrove forests to District Offices, that are closer to the resource-users, is favorable to community-based management.

Rating – Highly Satisfactory (HS)

C.5. Financial Planning and Management

61. The financing and co-financing of the project was planned well but due to the delay in the disbursement of funds from UNEP to WWF and WCS (Fiji), the co-financing from WCS had been consumed in related project activities prior to the actual start of the project. WWF-US instead raised additional co-financing for the project from Hewlett-Packard. WWF-US,

[24] The questions in the ToR for this criterion are with the assumption that the country is executing the project. For completeness, the comments are made on how the country has adapted the Outputs of the MSP.

as soon as staffing for the project stabilized, eventually managed the finances well. There was a no-cost extension to compensate for the delays at the start of the project and to allow a second monitoring activity (see also the section C, par. 46-50 on factors affecting execution of project).

Rating – Satisfactory (S)

C.6. UNEP supervision and back-stopping

62. There were two Task Masters (TMs) in the project, one before and after the Mid-term Evaluation and Project Steering Committee in 2009. The TMs have used the monitoring and evaluation plan to supervise the project (see M & E section). Candor in the assessment of project performance from the start and in the reports was observed however there were short-comings in the substantive back-stopping in the implementation of the project. Documentation of the revision of the logical framework was limited and there was reported delay in response to requested changes in the logical framework and corresponding work plans, that have caused uncertainty in the execution of activities. There was also no correspondence to GEF Secretariat for changes in the logical framework consequently the reporting of activities and outputs in the Progress Implementation Report (PIR, GEF monitoring tool) was still based on the original 4 ***Outcomes*** (not 2 as revised) until the end of the project. The non-reporting was possibly due a perceived barrier to project revisions in GEF-funded projects[25] (Spilsbury et al., 2010), that apparently still prevails in UNEP. There is apparent uncertainty on which logical framework that is the basis for execution in Fiji. The final work plan (see Project Section) was based towards the 4 ***Outcomes.*** The Terminal Technical Report was according to the revised logical framework but it also made an accounting of activities and outputs according to the original logical framework. The number and substance (statement) of ***Outcomes*** have bearing in the Results of Outcomes to Impact (ROtI) analysis or Theory of Change, which is the framework for the evaluation of the impact of the project (ToR). (It was agreed with UNEP that the revised logical framework of 2 Outcomes is the basis for the terminal evaluation.)

Rating – Moderately Satisfactory (MS)

C.7. Monitoring and Evaluation

63. The Monitoring and Evaluation (M & E) design is according to the requirements of UNEP and GEF. The M & E activities were conducted throughout the project.

Monitoring and Evaluation design

64. The M & E design satisfied the requirements of UNEP and GEF. The logical framework was revised by WWF and approved by UNEP. The revised M & E Plan (January 2008) had indicators, means of measurements, baselines, and targets. Indicators and Targets of ***Outputs*** and ***Outcomes*** are SMART[26] (e.g., vulnerability of pilot area, local knowledge of vulnerability and adaptation).

65. There are deficiencies in the framing of the ***Outputs*** and ***Outcome*** statements. The ***Outputs*** were written as accomplished activities (e.g., vulnerability of mangrove ecosystems … assessed, adaptation strategies developed and implemented) instead of tangible results (e.g., vulnerability assessment reports, adaptation strategy). ***Outcome 1*** is realistic but ***Outcome 2*** is risky to achieve because it is dependent on external parties (e.g., WWF

[25] GEF allows project revisions, especially at the Inception Meeting. Revisions on ***Outcomes*** are necessary as this is part of the global monitoring towards impacts. UNDP has a 1-page form to be filled for this purpose.
[26] SMART – specific, measurable, attainable, realistic, and time-bound

Indonesia, WWF Philippines) and in a short period of time (par. 46). A review of the results-based management framework is necessary in conjunction with the orientation for all the monitoring tools of UNEP and GEF (quarterly and half-yearly reports, PIRs) at the inception of the project.

Rating – Satisfactory (S)

Monitoring and Evaluation (M & E) Plan Implementation

66. The M & E Plan was operational and effective in the tracking throughout the implementation period of results and progress towards outcomes. The first Task Manager of UNEP wrote in early 2008 to WWF following the assessment in the first PIR (2007) of the underperformance and the risk of the project. All the quarterly and half-yearly progress reports to UNEP and PIRs (2007 to 2010) to GEF were submitted although there were reported deficiencies in the reporting in 2007 and 2008. The MTE was conducted 18 months into project execution (2009) which provided substantive and administrative recommendations towards the successful completion of the project. The final Technical Report is comprehensive and of high quality.

Rating – Satisfactory (S)

Budgeting and Funding for activities

67. WWF-South Pacific Programme received funds for activities (see section on attainment of activities to outputs). The funds were not available in 2008 (second year of implementation) partly because of unsatisfactory reporting of WWF-US to UNEP. The Project has allocated funds for M & E activities. The MTE was conducted in 2009. The funding, however, is insufficient to have more time for visiting all the sites in Fiji for the terminal evaluation.

Rating – Satisfactory (S)

D. Complementarity with UNEP Programmes and Strategies

68. UNEP is implementing the *Climate Change Programme – Our Vision 2010-2013: Resilience to Climate Change* of UNEP. The IA is also implementing activities focusing on Small Island Developing States (SIDS; 2009-2011) and in support of the Programme of Work for achieving environmental sustainability in SIDS under the Mauritius Implementation Strategy (2005-2015).

Linkage to Programme of Work (PoW) 2010-2011

69. The project contributes to attaining the objective in “strengthening the ability of countries to integrate climate change responses into national developmental processes” under Subprogramme 1 on Climate Change. The ***Outputs*** of the Fiji project contribute to the cross-cutting theme on *Understanding and Awareness of Climate Change*, particularly in the following theme under Adaptation:

- Ecosystem-based adaptation flagship
- Ecosystem-based adaptation support
- Impact and vulnerability assessments
- Adaptation capacity, policy, and planning support

Alignment with the Bali Strategic Plan

70. The Fiji Project is aligned to the themes on climate change and conservation of wetlands (mangrove forests, being classified as wetlands in the Ramsar Convention) in the Bali Strategic Plan. It addresses cross-cutting issues (listed in the Plan) such as: assistance for facilitating compliance with and enforcement of obligations under multilateral environmental agreements and implementation of environmental commitments; preparation, integration and implementation of environmental aspects of national sustainable development plans; development of national research, monitoring and assessment capacity, including training in assessment and early warning).

Gender

71. The project involved women and men in the training for the VA methodology and in the formulation of the adaptation measures. Women and men were and are still involved in managing the mangrove forests and livelihood activities (e.g., ecotourism and salt-making). School children – both girls and boys – are welcome to come and observe the traditional salt-making process and to learn more about mangrove trees and forests (in T. Wai). The project has maintained in Fiji the equal share of responsibilities in managing natural resources and in the reaping of benefits from conservation.

South-South Cooperation

72. Fiji is a Small Island State unlike Cameroon and Tanzania but it shares common socio-economic threats and climate change impacts on mangrove forests and adjacent ecosystems. The preparation of the VA and adaptation tool-kit with Fiji, Cameroon, and Tanzania case-studies is an example of South-South cooperation. The sharing of findings and experiences in T. Wai in Fiji to other member states of SPREP and to countries involved in the MFF is another example of South-South cooperation.

Part III. Conclusions and Recommendations

73. Socio-economic activities near and within mangrove forests threaten the structure of the ecosystem, seagrass beds, and coral reefs, leading to loss of ecosystem services. Clearing of mangrove forests for tourist resorts, clearing for settlements, and cutting of mangrove trees for construction material and charcoal are some of the socio-economic activities that threaten this coastal ecosytem in Fiji. Sea level rise and freshwater flooding from severe storms are climate change impacts that also threaten mangrove forests of the low-lying islands of Fiji. The assessment of the vulnerability of mangrove forests in Tikina Wai, Kubulau, and Verata to climate change and the formulation of adaptation measures (improved management) were achieved, which in turn could reduce the threats.

74. The evaluation was conducted to answer the following key questions[27] (ToR):

a) How successful was the project in building and strengthening the capacity of conservation practitioners to promote effective vulnerability assessment and climate change adaptation projects and policies?

b) Has the project enhanced capacity in participating countries to perform effective climate change vulnerability assessments?

[27] These questions in were based on the original logical framework. These set of questions were not changed in the course of the evaluation.

c) To what extent has the project achieved improved policy and adaptation measures that reflect the interests and needs of a wide range of stakeholders at the national, regional, and international levels?

d) How successful was the project in setting up generic guidelines for up-scaling and replication of the lessons learnt from the project's experience?

e) Has the project succeeded in developing effective vulnerability assessment and adaptation planning methods that are replicable and used in other countries and in differing ecosystems?

f) How successful was the project in strengthening opportunities for knowledge sharing and activities related to climate change adaptation at the national, regional and international levels?

The conclusions below are framed on these questions.

A. Conclusions

75. The project was successful in:

- building and strengthening the capacity of conservation practitioners to promote effective vulnerability assessment and climate adaptation projects and policies (par. 12-17; Section A; Annex 1);
- influencing the formulation of the national policy for climate change (par. 12-17; Section A; Annex 1);
- documenting lessons learned for adoption in other geographic areas (par. 14-17; Section A; Annex 1);
- contributing to the preparation of the VA and adaptation manual in the methodology and in lessons (case studies) that are applicable mangrove forests, particularly those surrounding small islands in the South Pacific, Southeast Asia, South Asia, and in the Caribbean (par. 14-17; Section A; Annex 1); and
- strengthening opportunities for knowledge-sharing and activities related to climate change adaptation at national, regional, and international levels (par. 14-17; Section A; Annex 1).

76. In summary, the Fiji part of the project contributed to the achievement of making available best practices for vulnerability assessment and implementing adaptation strategies for mangrove ecosystems (***Outcome 1***). Steps were taken by the Project Manager and the Chief Scientist that can lead to more conservation stakeholders, at local, regional, and global levels, in applying new skills in climate change adaptation (***Outcome 2***).

77. The aspects in the implementation and execution of the project that were not so successful were in the preparation and readiness of WWF-US at the start of the project and in the back-stopping of UNEP. The executing agency was not prepared and ready to execute the project as soon as the project was approved (par. 46). The lessons learned from these aspects are presented below (Lessons; par. 81).

78. The ratings according to specific criterion are summarized in Table 2. The project has achieved the project objectives and results (Section A) by being relevant to national commitments to the CBD, UNFCC, and SPREP, by (i) using existing knowledge on coastal ecosystems and meteorological data and GIS for preparation of the VA manual, including the formulation of adaptation measures, and by (ii) training conservation practitioners in conducting VA and consulting community-members for the appropriate adaptation measures. The ***Outcomes*** of the project are potentially sustainable (Section B) because of

the adoption of the NPCC, which incorporates activities for VA and adaption to climate change, and the manual that was produced in the project can be used by the Climate Change Unit in other mangrove sites in Fiji and in the South Pacific SIDS. The stakeholder engagement and participation in the project and the dissemination of the findings and lessons learned in formulating climate change adaptation have strongly contributed towards the sustainability of the ***Outcomes***.

79. The Fiji portion of the Project was executed successfully after the resolution of challenges in the management at the global level (WWF-US). The recommendations at the MTE were followed, particularly in appointing the Chief Scientist (CS) in addition to the Global Coordinator. The GC was responsible to ensure that funds are available to the Project Manager in Fiji, to coordinate actions, and to gather reports from Fiji (and other countries) for reporting to UNEP and GEF. The CS was responsible to guide the scientific process (i.e., vulnerability assessment, adaptation development, formulation of a method for VA and adaptation for application in tropical areas).

80. WWF-Fiji and South Pacific Programme executed the project with flexibility to adapt to the changes in focus and management of the project. The dedication of the staff to undertake the activities, before and after the MTE, has produced outputs contributing to the improvement of management mangrove ecosystems that are vulnerable to climate change and the strengthening of the capacity of local, national, and regional (SPREP) conservation practitioners in critical aspects of climate change adaptation.

Rating – satisfactory (S)

81. The summary of ratings for each criterion is presented in the below.

Table 2. Summary of ratings for each criterion in the terminal evaluation of the project

Criterion	Summary Assessment	Rating
A. Attainment of project objectives and results	Objective 1 was achieved. All the results and the target were attained. Concrete steps were taken in the 2 or 3 project sites to reduce threats of sea-level rise and coastal development on mangroves. Objective 2 is partially attained. The capacity of local stakeholders in Fiji is strengthened. The target of additional sites for the application of guidelines (100,000 hectares) was not achieved.	**S**
1. effectiveness	The project has built and strengthened the capacity of conservation practitioners to promote effective coastal vulnerability assessment and climate change adaptation projects and policies. The national government has also adapted the findings and recommendations from the field into the National Policy on Climate Change Adaptation. The VA Manual has contributions from the Fiji Demonstration Sites in every step of	**S**

	the methodology as such the Fiji portion of the project might have effectiveness in other geographic areas that it will be applied. The Chief Scientist and the Project Manager of Fiji have also presented the methodology at forums in the South Pacific and Southeast Asia.	
2. relevance	Objectives and implementation strategies (science-based development of methodology for assessment, participatory development of adaptation measures and monitoring activities with community members, awareness-raising using appropriate media) are relevant and consistent with the GEF Operational Objective 2 for Biodiversity (ecosystem), International Waters Focal Area Objectives, Climate Change Adaptation Programme, and UNEP's Programme of Work for Climate Change Adaptation (under the Convention on Biological Diversity).	**HS**
3. efficiency	The Fiji project was cost-effective. It availed of existing data and information on the sites (gathered by WCS, WWF, USP, and Reefbase/WFC), worked with both governmental and non-governmental partners, executed in existing project sites, and built on existing conservation programs. The cost of the Fiji project to GEF and UNEP is comparable to the cost of the demonstration site projects in the South China Sea Sea Project.	**HS**
B. Sustainability of project outcomes		**S**
1. financial resources	Republic of Fiji National Climate Change Policy is the implementing tool for the following strategies of the *Peoples' Charter for Change, Peace, and Progress* (2008): Environmental protection, sustainable management and utilization of natural resources; strengthening institutional capacity for environmental management; and strengthening food security. The *Roadmap of democracy and sustainable socio-economic development 2009-2014* is the implementing framework for the Charter. The Climate Change Unit in the Government of Fiji is responsible to deliver the NCCP and the programs	**S**

	under SPREP. The 2 ***Outcomes*** of the Project are relevant to the strategies of the Fiji NCCP and some members of the Climate Change Unit are knowledgeable about these Outcomes (having participated in national consultations) thus it is like that the ***Outcomes*** will be continued in the 2 sites and contribute to improvement of mangrove management and climate change adaptation.	
2. socio-political	LMMA is established in Fiji. Villagers are trained and empowered. Stakeholders (policy-makers, village leaders, researchers) are aware of vulnerability of coastal ecosystems and knowledgeable of adaptation measures. NGOs are welcomed as partners in environmental management in Fiji.	**S**
3. institutional framework	National Policy for Climate Change Adaptation was formulated with inputs from the Project. NCCTF coordinates efforts various agencies. Stakeholders are part of the framework. (Please see also comments under financial resources.)	**S**
4. environmental sustainability	The Resilience in the mangrove ecosystem by reducing the threats (clearing, cutting, freshwater flooding) and increasing protection of large tracks of mangrove forests (that are less threatened by sea-level rise). These adaptation measures are put in place only in 2007 and the monitoring data is only limited to two points in time. It is too early to conclude on whether these measures are enough to combat sea-level rise, which is dependent on the actions of external parties (countries with high carbon emission, causing green-house effects on glaciers). The intensity and frequency of typhoons can have negative effect (sediment loss, death of mangrove seedlings due to freshwater flooding) on gains in the protection of mangroves.	**S**
C. catalytic role (and replication)	GEF/UNEP/WWF SPP has catalyzed behavioral changes, contributed to institutional and policy changes (integration/coordination of efforts of various agencies and stakeholders), contributed to follow-on financing from	**S**

	Australia (AusAid), and created champions (former Project Manager and other staff). The lessons are shared in lessons in Fiji and in the South Pacific (SPREP, PACC) and Southeast and South Asia (MFF, WWF Global Network) and will possibly be taken up by CTI Pacific and CT Southeast Coastal and Marine Resources Management (GEF CTI Program).	
D. stakeholder involvement	Stakeholders participated in activities and made aware of the findings under the 2 components of the project. The involvement and increased awareness of the public were effective to influence national and regional policy and continuous community-based management (after the project).	**HS**
E. Country ownership/driven-ness	The national government has adapted the findings and recommendations of the project in its NPCC and its position in the global conferences on CC. The local district government has taken over the project (particularly the cooperation with the villagers to protect mangrove forests from clearing for large infrastructure development). The socio-political environment was conducive for the execution and performance of the project. (Please see also comments in financial resources and catalytic role.)	**HS**
F. Achievement of outputs and activities	Most of the activities were undertaken. The following **Outputs** were achieved: database of coastal and marine ecosystems; bleaching history; vulnerability assessment methodology; vulnerability assessment; trained community-members for monitoring sea-level rise/sedimentation rate; 3 adaptation strategies; public awareness materials; reports and scientific publications. Knowledge was shared through various media to local, national, regional, and international audiences.	**S**
G. Preparation and readiness	The project objectives and the expected outcomes were clear (especially in the internally revised Project Document). WWF-Fiji staff did not get sufficient operational guidance from WWF-US but preparatory work was conducted by Project staff.	**MS**

H. Implementation approach	The implementation approach, as outlined in the Project Document, was followed however due staff changes in both implementing and executing agencies, there were delays at the start of the project. WWF-US engaged a Chief Scientist from outside its network (University of Tasmania, Australia), who has vast experience in Fiji and the field of research. The collaboration between the Chief Scientist and Global Coordinator advanced the project in Fiji (and in the other 2 countries).	**S**
I. Financial planning and management	The financing and co-financing of the project was planned well but due to the delay in the disbursement of funds from UNEP to WWF and WCS (Fiji), the co-financing from WCS had been consumed in related project activities prior to the actual start of the project.	**S**
J. Monitoring and Evaluation	The M & E design is according to the requirements of UNEP and GEF. The logical framework has SMART indicators. M & E activities were conducted throughout the project.	**S**
1. M & E Design	The M & E design satisfied the requirements of UNEP and GEF. The logical framework was revised by WWF and approved by UNEP however the PIR reporting template, which tracks the activities and outputs for each Outcome was not revised.	**S**
2. M & E Implementation	All the half-yearly progress reports, PIRs, and MTE were completed. The final Technical Report is comprehensive and of high quality. The Technical Report also reported on the expected outputs according to the original logical framework.	**S**
3. Budgeting and funding for M & E activities	The Project has allocated funds for M & E activities. The funding, however, is insufficient for visiting all 3 sites in Fiji and to evaluate intermediate status.	**S**
K. UNEP supervision and backstopping	There were moderate short-comings in the substantive and financial back-stopping in the implementation of the project.	**MS**

UNEP/GEF	The start of the project was delayed partly by the delay in the disbursement of funds. There was also a delay in response to requested changes in the logical framework and work plans. Documentation of the inception meeting and the revision of the logical framework were limited. (The change in supervisors was probably the reason why this was so.) Candor in the evaluation and the ratings of the Fiji portion of the project was observed. There was no correspondence to GEF for changes in the logical framework but the reporting of project activities and outputs to GEF (PIRs) was based on the original logical framework despite the fact that there was a revision on the log frame.	**MS**

B. Lessons learned

82. The lessons learned in the execution of the Fiji portion of the project are not new rather they reinforce lessons learned from other projects. These lessons are instrumental to the successful achievement of outcomes:
i. partnerships among stakeholders, from the policy-makers, donors, to the resource-users during the execution of the project facilitate adoption of biodiversity conservation measures by communities (resource-users) and elimination of barriers in policy;
ii. environmental management can be supported by science and can be designed for applicability and utility (Vulnerability Assessment Methodology and Adaptation Manual); and
iii. adaptive management, both in the administrative and substantive aspects (science, policy), is important in blazing new avenues for policy formulation.

83. The evaluation has specific lessons for consideration by the Implementing and Executing Agencies of GEF and the GEF Secretariat. These are outlined below for consideration in approving, implementing, and executing medium-sized projects under the Biodiversity Focal Area as well as the other Focal Areas of GEF (International Waters Focal Area).

84. The ***stringent application of scientific review of the logical framework at the outset will avoid uncertainty and delays in implementation and execution.*** The revision of the logical framework during the implementation and execution of the project resulted to loss of time and momentum in the 3-year project. The revision of work plans and the waiting for approvals of revised work plans resulted, in the project, the loss of time that was meant for executing activities. No-cost extensions of the project were requested by WWF-US and granted by UNEP, partly because of this revision of the logical framework. The scientific review can be conducted by external reviewers or scientific networks in the respective regions. This is consistent with Principles 11 and 12 of the Ecosystem Approach in the Convention on Biological Diversity for sound science to be used in biodiversity conservation. (This lesson and recommendation are consistent with the findings of the International Waters Science Project that reviewed projects under the International Waters Focal Area.)

85. The ***participation of UNEP at the inception meeting is necessary and important*** for the orientation of partners on the procedures for disbursement of funds and for the requirements of monitoring and reporting to ensure implementation and execution of the project as planned. The inception meeting is a crucial point in any project, especially when there are 2 agencies that are involved with different fiduciary responsibilities in the implementation and execution of the project in 3 countries towards the development of 1 method for global application. The expected outcome from the inception meeting is the common understanding of the content and implementation arrangements, e.g., monitoring and evaluation schedules and procedures (contracting, substantive and financial reporting, disbursement, and 'adaptive management concept[28]' in project management. This is part of the back-stopping task of UNEP/GEF Office.)

86. The ***timely conduct of the Mid-term Evaluation is beneficial*** for corrective measures and it is important that this is conducted as planned. The Mid-term Evaluation (MTE) is intended as an objective evaluation of the implementation and execution of the project to ensure that corrective actions are taken, if needed, and to have sufficient time to implement these actions. Implementing Agencies are recommended to enforce the conduct of the MTE as planned, at the mid-point of implementation, in the signed Project Document regardless of the progress. Reports of delay in implementation and execution in the first PIR should alert the IA to remind the EA to arrange for the MTE as planned. This is crucial in a medium-sized and short-term project (36-month project).

87. The ***documentation of revisions and adjustments in monitoring (tracking) tools of GEF is important to avoid confusion and delays*** in project implementation, monitoring, reporting, and evaluation. The PIR is the monitoring and tracking tool of GEF for assessing achievements towards impact and accrual of global benefits (using the theory of change or results of outcomes to impact analysis). UNEP needs to communicate more with GEF Secretariat specially revisions of the Outcomes in the logical framework and overcome the perceived barrier for project revisions in GEF Projects (see Lesson 3 in Spilsbury et al., 2010).

88. ***Coordination and management are important tasks in project management***, especially for projects executed in several countries. The coordinator of a global project needs to have both technical understanding and managerial skills for efficient and effective implementation. Appropriate and transparent appropriations of time or funds should be made at the design phase, clarified and understood by all parties at the Inception Meeting, and reported regularly to the IA in the course of execution.

89. The ***engagement of a scientist at the design and execution phases of the project can be cost-effective and cost-beneficial***. Delays in project execution due to lack or poor scientific guidance and supervision can be costlier than the consultancy fee of a scientist at the beginning of the project.

C. Recommendations

To WWF and UNEP

I. promote the vulnerability assessment and adaption toolkit

[28] Revision of **Outcomes** and **Outputs** – The revision of **Outcomes** should be presented to GEF Secretariat for approval. The revision of **Outputs** should be presented to the Implementing Agency (UNEP) for review and approval.

90. It is recommended that VA Toolkit is promoted in the countries within the Coral Triangle region to contribute to achieving impact in the Pacific and Southeast Asian countries. WWF and UNEP are encouraged to continue working with Conservation International, International Union for the Conservation of Nature, The Nature Conservancy, and SPREP in the Pacific and in other regions where mangroves are threatened under their respective programmes (e.g., Threatened Places - Coral Triangle, Regional Seas Programme). The agencies can also work with multilateral and bilateral donors that are active in the region in addressing climate change impacts (e.g., ADB, AusAid, GIZ, USAID).

To Fiji Department of Environment, Forestry Department, and other agencies

91. It is recommended to that the VA tool kit is used in the management of mangrove forests and in the utilization of the coastal zone, within the context of the NAPA. The results of the adaptation measures should be shared with communities in Fiji and in the small island states in the Pacific Ocean.

List of Annexes

Annex 1 – Revised logical framework of evaluation of achievements

Annex 2 – List of documents reviewed

Annex 3 – Persons interviewed

Annex 4 – Evaluation Program

Annex 5 – Bibliography

Annex 6 – Consultant – brief Curriculum Vita

Annex 1 – Revised logical framework and evaluation of achievements

Outcome/ Activities	Planned Outputs	Indicators/Targets / Actual Outputs	Evaluation/References
1.1. Best practices are available for conducting vulnerability assessments (VA) and implementing adaptation strategies for mangrove ecosystems		Indicator: Vulnerability of pilot areas (in Fiji) Target: Concrete steps taken to reduce at least two sources of vulnerability in mangrove ecosystems in pilot sites	7. Accomplished; 8. 9. concrete steps taken were (Target): i) establishing networks of MPAs; ii) collaboration with communities to establish mangrove protected areas and diversify livelihoods. Mangrove restoration with "climate smart species" was tested at all sites.
		Indicator: Project guidelines meet international standards[29] for vulnerability assessment (adaptation) Target: 3 peer-reviewed articles	0. Accomplished; 1. Fiu et al.., 2010; Ellison, J. C. 2010; Ellison, J. and P. Strickland. 2010. 2.
Act. 1.1.1.1. *vulnerability of mangrove ecosystems in three countries assessed* ***Act. 1.1.1.2*** *– create computer inventories of the selected region;* ***Act. 1.1.1.3*** *– analyze past coral bleaching events in relation to mangrove proximity/health*	1.1.1. Vulnerability of mangrove ecosystems (in Fiji) assessed	5. VA report of 3 sites in Fiji	6. Accomplished: 7. ***1.1.1.1***. assessment was conducted - Fiu et al.., 2010; 8. ***1.1.1.2.*** database and GIS of inventory of mangroves, seagrass beds, and coral reefs in 3 project sites: Kubulau; Tikina Wai; and Verata; *9.* *0.* ***1.1.1.3.*** Map of bleaching event in Fiji (based on information from Reefbase) 1. 2. ***1.1.1.4.*** collaborative assessment through community engagement and training (WWF Fiji, 2007; Ellison, 2009), including species distribution and conservation coverage; 3. ***1.1.1.5.***. socio-economic

[29] MTE comment "What are (those) standards ?" - From the corresponding source of verification of the **indicator**, this phrase meant the standards of scientific publication (peer review).

Act. 1.1.1.4 *– analyze species distribution and conservation coverage in target sites*[30] ***Act. 1.1.1.5*** *– document socio-economic baseline, including the extent of harvesting and/or resource use*[31]*;* ***Act. 1.1.1.7*** *– finalize vulnerability assessments for each project* *3.* *4.*			baseline used was from a previous project (Bolabola et al., 2006); 4. ***1.1.1.7.*** vulnerability assessment finalized and results reported (Fiu 2010); 5.
Act. 1.1.1.6 *– analyze adaptive capacity of mangrove ecosystems* ***Act. 1.1.2.1*** *– accumulate and assess global experience on adaptation of biodiversity* ***Act. 1.1.2.2*** *– identify adaptation options for each country* ***Act. 1.2.2.3*** *– develop adaptation strategy for each country* ***Act. 1.1.2.4.***	***Output 1.1.2***. Adaptation strategy developed and implemented (in Fiji)		Accomplished: ***1.1.1.6.*** one of the principles of the Vulnerability Assessment and Adaptation Manual ***1.1.2.1.*** [WWF-US role]; ***1.1.2.2.*** community-endorsed networks of protected areas in T. Wai and Kubulau (p.8, Term. Tech. Rept.) through ; ***1.2.2.3.*** developed through stakeholder consultations (p. 8. Term. Tech. Rept.); ***1.1.2.4.*** applied 'no-regrets' tools at start of project; adaptation measures applied in T. Wai and Kubulau

[30] "Part of 1.1.1.2"

[31] " Comment : W4: Resource use pressures are likely to be covered under the vulnerability assessment; detailed socio-economic assessments were not included as a project activity in the original logframe/workplan/proposal. Also is clearer if the activity listing for the VA work parallels that of the adaptation work (e.g., listing development and adaptation rather than particular elements of the VA or adaptation plan.)"

Implement pilot adaptation project in key sites *6.*			
Act. 1.1.3.1*. – synthesize project experience into generalizable methodology for assessing vulnerability and adaptation of mangrove ecosystems;* ***Act. 1.1.3.2*** *– develop other training tools, based on generalizable methodology, …* ***Act. 1.1.3.3.*** *– publish project results in peer-reviewed journals* ***Act. 1.1.3.4*** *– publish project results in popular media, and other formats appropriate for local communities* ***Act. 1.1.3.5*** *– present project results, including training materials, at regional and global meetings* *7.* *8.*	1.1.3. Project best practices developed and available in an accessible form		***1.1.3.1.*** case studies from Fiji were included in the Vulnerability Assessment and Adaptation Manual; ***1.1.3.1.*** through ELAN (WWF, IUCN, McArthur Foundation) ***1.1.3.3.*** publications Strickland, 2009; Fiu et al., 2010; Ellison, J. C. 2010; Ellison, J. and P. Strickland. 2010. Jenkins et al.. 2010 Siow, H. 2010. Fiji case study included in the paper: Hansen et al.., 2010 ***113.3.4.*** through Adaptation Learning Platforms (http://www.adaptationplatform.org); and Climate Prep (http://www.climateprep.org); Mangroves People and Livelihoods Brochure: Fiji (Dec. 2010): ***1.1.3.5.*** National Workshop on mangrove resilience to climate change (Tokaduadua et al., 2009);
Outcome 2.1. Conservation stakeholders at local level, regional, and global levels applying new	*9.*	Indicator: Local knowledge of vulnerability and adaptation Target: 66% of surveyed	Quantitative target not achieved: no baseline conducted; no end-of-project assessment of behavioural or level of understanding assessment (budget USD 6,000 for 3 countries); qualitative report – "Enhanced

skills in climate change adaptation		stakeholders demonstrate understanding of vulnerability and adaptation *2. Project guidelines meet international standards[32] for (vulnerability assessment) and adaptation*	awareness and capacity among districts, villages, government departments (environment, fisheries, lands, tourism), conservation practitioners (field staff of partners). Over 20 mangrove and ecosystem health monitors trained at the village level." p. 14 (Term. Tech. Rept.)
***Act. 2.1.1.1** – increase awareness among local stakeholders…;* *0.*	*1. **Output 2.1.1.** Local stakeholders in three pilot countries are better equipped to respond to climate change* *2.*	Indicator: Local knowledge of vulnerability and adaptation Target: 66% of surveyed stakeholders demonstrate understanding of vulnerability and adaptation	Quantitative target not achieved: no baseline conducted; no end-of-project assessment of behavioural or level of understanding assessment (budget USD 6,000 for 3 countries); qualitative report – "Enhanced awareness and capacity among districts, villages, government departments (environment, fisheries, lands, tourism), conservation practitioners (field staff of partners). Over 20 mangrove and ecosystem health monitors trained at the village level." p. 14 (Term. Tech. Rept.)
3.	*4.*	Indicator: Project guidelines adapted for use in at least 2 new sites in three participating countries and in at least 1 site in neighboring countries including Kenya, Mozambique, Indonesia, Philippines Target: At least 100,000 hectares of additional sites applying project guidelines	Not accomplished fully; WWF-Indonesia not aware of guidelines (VA manual); WWF-Philippines is applying similar conservation tools for CC adaptation in 80 km of coastline in Sablayan Municipality, Occidental Mindoro, Philippines (http://www.wwfphils.org); applied in Sungai Buloh, Singapore (87 hectares) by student (Siow, 2010)

[32] MTE comment "What are (those) standards ?" - A. S. Cabanban comment: From the corresponding source of verification of the **indicator**, this phrase meant the standards of scientific publication (peer review).

Act. 2.1.1.2 *– facilitate collaboration between local stakeholders, in particular communities and technical experts in VA;* ***Act. 2.1.1.3*** *– facilitate collaboration between local stakeholders, in particular communities and technical experts in development and adaptation strategies;* ***Act. 2.1.1.4*** *– Ensure pilot adaptation projects … reconcile conservation with local needs;* ***Act. 2.1.1.5*** *– convene national meetings to gather input from local stakeholders and to showcase project results* 5. 6.	7.		Evaluation: accomplished ***2.1.1.1.*** through implementation of VA and adaptation activities in partnership with local communities; national stakeholder meetings; participation in government processes and regional trainings; extensive media coverage of project; Membership in the Fiji National Climate Change Country Team, Department of Environment (continuing); Membership in the Fiji Protected Area Committee (continuing) ***2.1.2.2.*** through implementation of VA and adaptation activities in partnership with local communities; national stakeholder meetings; participation in government processes and regional trainings; extensive media coverage of project. ***2.1.2.3.*** Adaptation projects in T. Wai and Kubulau; ***2.1.2.4***. Support to SPREP and Pacific Mangroves Initiative; ***2.1.1.5.*** national consultation workshop on mangrove resilience (WWF-South Pacific; and DoE Fiji, March 2009; SPREP Pacific Regional mangroves training program monitoring training (T. Wai, November 2010); Training & Capacity Building Regional Workshop on Climate Variability and Change in PICs: Impacts, Vulnerability and Adaptation (PACE USP: Nov 22-Dec 3, 2010); Fiji Government Stakeholder Workshop; Tokaduadua et al., 2009)
Act. 2.1.2.1 *– present project results, including training materials, at*	*0.* ***Output 2.1.2****. Use of Project's new guidelines by regional*	<u>Indicator:</u> Project guidelines integrated into biodiversity planning by leading conservation	Evaluation: No evidence available to evaluator; key components of guidelines adopted by WWF India, Pakistan, Philippines, Vietnam (p. 10, Term.

regional and global meetings; ***Act. 2.1.2.2*** *– test generalizable methodology and training materials at regional throughout WWF's global network*; ***Act. 2.1.2.3*** *– facilitate partnerships between leading climate change institutions and conservation organizations* 8. 9.	*and global stakeholders*	institutions <u>Target:</u> At least 3 organizations request guidelines	Tech. Rept.; MFF has used the guidelines in their training program in 12 countries (including Malaysia, Thailand, Vietnam) – http://www.mangrovesforthefuture.org) ***2.1.2.1.*** Pacific Council of Churches (PCC) NGO Partners (Sept. 7, 2010); See also list under ***2.1.2.3.;*** Ellison, J.C. (2010). Climate change adaptation in mangrove systems. Climate Adaptation Futures Conference, Gold Coast, Australia, 29 June-1 July, 2010.; Ellison, J.C. and Cook, J. (2010). Mangrove climate change vulnerability and adaptation: Collaborative approaches. Mangroves for the Future 6th Regional Steering Committee Meeting, Cha-Am, Thailand, 26-28 January, 2010. Ellison, J. and Cook, J. (2010). Climate Proofing MFF projects: a briefing paper from WWF. Paper prepared for the Mangroves for the Future 2nd Regional Training Course on Project Cycle Management, Tamil Nadu, India, 4-10 October, 2010, 17pp. Rubens, J., Ellison, J., Cook, J., Fiu, M., and Tchikangwa, B., (2010). Climate change vulnerability assessment and adaptation in mangrove systems. Paper presented at the International 10 conference "Deltas in Times of Climate Change," Rotterdam, The Netherlands, 29 September – 1 October 2010. Ellison, J.C. (2010). Climate change scenarios and effects on mangrove systems. Mangrove Ecosystems for Climate Change and Livelihood Pre-Inception Workshop, Honiara, Solomon Islands 10-12 February, 2010. Ellison, J.C. (2009). Climate change impacts on, and vulnerability and adaptation of mangrove ecosystems. ASEAN Conference on Biodiversity 2009: Biodiversity in

			Focus: 2010 and Beyond. Singapore, October 21-23, 2009. ASEAN Centre for Biodiversity (ACB) and the National Parks Board (NParks) of Singapore. ***2.1.2.2.*** ***2.1.2.3***. results presented to the Mangrove for the Future (January 2010) and used in a regional workshop (October 2010); IUCN Pacific Mangrove Initiative (2009-2013); SPREP use T. Wai as demon; IUCN-WWF ELAN; CARE and IIED ; TNC, WB, Coastal Resources Center, University of Rhode Island

Annex 2 – List of documents reviewed

- Project design documents: Project Document
- Project supervision plan, with associated budget
- Correspondence related to project
- Supervision mission report
- Project progress reports, including financial reports submitted
- Cash advance requests documenting disbursements
- Annual Project Implementation Reports (PIRs) 2007, 2008, 2009, 2010
- Mid-term Review TOR and Report
- Management memos related to project
- Other documentation of supervision feedback on project outputs and processes (e.g. comments on draft progress reports, etc.).
- Extension documentation
- Project Technical Terminal Report

Annex 3 – Persons interviewed

Name	Position/Institution	Role in Coastal Resilience Project
Dr. Joanna C. Ellison	Senior Lecturer University of Tasmania Australia	Chief Scientist
Ms. Monica Fiu	World Wide Fund for Nature (WWF) - South Pacific Program (formerly)	Project Manager for Fiji
Ms. Akisi Bolabola	Coordinator, Coastal Resource Use Management , WWF South Pacific Program	none
Mr. Alfred Ralifo	Policy Officer, WWF South Pacific Program	none
Ms. Stephanie Robinson	Project Manager, Building Resilience: Strengthening Community Adaptation Measures to Effects of Climate Change in the Fiji Islands, WWF	none
Akanisi Caginitoba	Wildlife Conservation Society	Financial Officer
Dr. Milika Sobey	International Union for the Conservation of Nature	none
Ms. Neema Nand	MESCAL Project Coordinator, Department of Environment, Fiji	stakeholder
Dr. Sarah L. Hemstock	Project Team Leader, EU-Global Climate Change Alliance (CCA) Project, University of the South Pacific (USP)	none
Ms. Sainimere Veitata	Project Coordinator, CCA Project, USP	none
Mr. Rusiate Ratuniata	Postgraduate Assistant, Mangrove Reforestation Project	none
Dr. Gillianne Brodie	Senior Lecturer, Biology Section, University of South Pacific	none
Mr. Adam Hewlitt	Proprietor, SCUBA Bula	Stakeholder, Tikina Wai; contributor to public awareness campaign

Annex 4 – Evaluation Program

November 2012 - desk review
December 2012 - site visit to Suva and Tikina Wai Pilot Site, Fiji

Tuesday, 4th December		
Time	**Meeting/Interview arrangement**	**Contact person**
9.00am – 10.00am	Meeting with WWF team – Akisi, Alfred, and Stephanie	Akisi
10 – 10.30am/ Wednesday afternoon	Sanjay Kumar – WWF Finance Manager *(not available)*	Akisi
1.00 – 2.00	Dr. Milika Sobey - IUCN	
3.00 – 3.45pm	WCS	Akisi/Cagi
4.00 - 4.45pm	Monifa Fiu – Project Leader: Fiji	Akisi
Wednesday, 5th December		
9.00 – 10.00am	DoE – Rahul/Sarah	Alfred
11.00 – 12.00 noon	PACE – USP	Akisi
2.30 – 4.00	WWF	Akisi
4:00 – 5:30	Monifa Fiue	
Thursday, 6th December		
7.00 – 9.30am	Leave for Tikina Wai – stop over at Nadroga Provincial Office *(not available)*	Alfred
9.30 – 10.00am	Meeting with Nadroga Provincial Office *(not available)*	Alfred
10.00 – 2.00pm	Visit to Lomawai village	Alfred/Naruma (WWF volunteer)
2.00pm – 4.00pm	Scuba Bula	Adam Hewlitt
Friday, 7th December		
9.00 – 11.00am	Travel to Nadi – meeting with Fiji Meteorological Station (cancelled)	Stephanie
End of Visit		

January – February 2013 – Report-writing
March – April 2013 – Revision of report

Annex 5 – Bibliography

Afzal, D. et al. 2002. A rapid assessment of the coral reef resources of Tikina Wai qoliqoli – traditional fishing ground. (cited in brochure – Climate Change and Variability in Tikina Wai, Fiji Islands. WWF South Pacific Programme. 2 pp.)

Bolabola A, Veitayaki J, Tabunakawai K and Navuku S. 2006. Socio Economic baseline Survey for Qoliqoli Cokovata Area District of Mali, Dreketi, Sasa and Macuata Vanua Levu.

Ellison, J. C. 2000. How Pacific mangroves may respond to predicted climate change and sea level rise. Ch. 15, pp. 289-301. In: Gillespie, A. and W. Burns (eds.) Climate change in the South Pacific: Impacts and responses in Australia, New Zealand, and Small Island States. Kluwer Academic Publishers, Dordrecht.

Ellison, J. C. 2004. Vulnerability of Fiji's mangroves and associated coral reefs to climate change. Review for the World Wide Fund. Lauceston, Tasmania: University of Tasmania.

Ellison, J. C. 2012. Climate change vulnerability assessment and adaptation planning for mangrove systems. Washington, D. C.: World Wild Fund (WWF). Pp. 142.

Fiu, M., F. Areki, I. Rounds, and J. Ellison. 2010. Assessing vulnerability of coastal mangroves to impacts of climate change: case studies from Fiji. Suva, Fiji: WWF South Pacific Programme. 46 pp.

Gilman, E., H. Van Lavieren, J. Ellison, V. Jungblut, L. Wilson, F. Areki, G. Brighouse, J. Bungitak, E. Dus, M. Henry, I. Sauni Jr., M. Kilman, E. Matthews, N. Teariki-Ruatu, S. Tukia, K. Yuknavage. 2006. Pacific Island Mangroves in a Changing Climate and Rising Sea. UNEP Regional Seas Reports and Studies No. 179. United Nations Environment Programme, Regional Seas Programme, Nairobi, KENYA.

Gilman, E. L., J. Ellison, N. Duke, and C. Field. 2008. Threats to mangrove from climate change and adaptation options: A review. Aqua. Bot. 89(2):237-250.

Meo, S. 2011. Mangrove reforestation projects in Fiji Locally-managed Marine Protected Area (FLMMA) Sites: A summary highlight from FLMMA Sites. Fiji: Institute of Applied Sciences. 9 pp.

Republic of Fiji. 2012. Republic of Fiji National Climate Change Policy. 72 pp.

Siow, H. 2010. Vulnerability analysis of mangrove ecosystems in Singapore. B. Sc. Honours Thesis. University of Tasmania.

Spilsbury, M. J., J. Brann, and S. Norgbey. 2010. Quality of Project Supervision Review 2009 – Summary Report. Nairobi, Kenya: UNEP. 32 pp.

Tokaduadua, E., F. Areki, and M. Fiu. 2009. Fiji's mangroves and coastal resilience to climate change. National Stakeholders Workshop Abstracts and Outcomes. 19 March 2009. IUCN. Suva.

Vanualailai, P. 2008. Thematic Assessment: Climate Change United Nations Framework Convention on Climate Change (UNFCC) – Final Report. Department of Environment, Fiji. 136 pp.

Veitayaki, J., B. Aalsberg, A. Tawake, E. Rupeni, and K. Tabunakawai. 2003. Mainstreaming Resource Conservation: The Fiji Locally Managed Marine Area Network and its Influence on National Policy Development. Resource Management in Asia-Pacific Working Paper No. 42. Canberra, Australia: Resource Management in Asia-Pacific Program.

WWF Fiji. 2007. Vulnerability assessment of mangroves training – 26 – 28 June 2007 (report). Lomawai Village, Tikina Wai. Viti Levu, Fiji. 25 pp.

WWF Fiji. 2010. Mangroves, People, and Livelihoods (brochure)

WWF-South Pacific. 2010. Assessing vulnerability of mangroves to impacts of climate change: case studies. (Project Report)

Annex 6 – *Curriculum vita* of Evaluation Consultant

ANNADEL S. CABANBAN, Ph. D. (Supporting Consultant)

Dr. Annadel Salvio Cabanban is a marine biologist who graduated from the University of the Philippines (Diliman, Quezon City) and James Cook University (Australia). She was in the academe since 1979 to 2006 in Malaysia and Philippines. Dr. Cabanban has also coordinated implemented, coordinated, and participated in regional projects at the Regional Coordinating Unit for the Seas of East Asia, United Nations Environment Programme (UNEP), interspersed during this period. She has co-managed the ASEAN-Australia Living Coastal Resources Project at Silliman University (1991-1993) and managed the Sulu-Sulawesi Marine Ecoregion Conservation Programme of the World Wide Fund for Nature Malaysia (2006-2008). She has, since 2006, been involved in national and regional projects that bridge marine science with conservation and policy.

Dr. Cabanban was involved since 199 5 in various capacities in the projects of the GEF International Waters in the Indonesian Sea, South China Sea and Gulf of Thailand, and Sulu-Celebes (Sulawesi) Large Marine Ecosystems and in the GEF Coral Triangle Program. She is at present the Ecosystem Approach to Fisheries Management Specialist of the GEF ID 3589 (RETA REG 7813) CTI Coastal and Marine Resources Management in the Coral Triangle: Southeast Asia under the Coral Triangle Initiative. She is a member of the Commission on Ecosystem Management (CEM) and the Survival of the Species Group-Groupers and Wrasses of the International Union for the Conservation of Nature and the International Society for Reef Studies.

END OF FIJI REPORT

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Annex 7. Progress on Activities and Outputs

Outputs/activities	Status	Comments
Output 1.1.1. Vulnerability of mangrove ecosystems in three countries assessed	**100%**	***Achieved. Vulnerability of mangroves at a number of sites within the three countries was determined and results contributed to the mangrove manual.***
Activity 1.1.1.1. Accumulate and assess global experience on conducting vulnerability assessments for mangrove and coral ecosystems	100%	The Global Coordinator, Chief Scientist and members of the Global Advisory Group regularly provided the country coordinators with examples drawn from other relevant VA activities around the world. The project's SharePoint web site, email, and regular teleconferences were employed for this purpose. WWF US also created an online adaptation platform and blog (http://www.adaptationportal.org and http://www.climateprep.org).
1.1.1.2. Create computer inventories of the selected region in each country (species distribution and conservation coverage)	100%	Inventory of representative mangrove ecosystems was prepared for each country. Data is stored in various computer formats and summarized in the country reports (e.g. Ajonina et al. 2011, Ellison and Strickland 2010, Ellison and Zouh 2012, Fiu et al. 2010, Nindi 2010, Obura 2010, Rubens et al. 2010, Wagner and Sallema-Mtui 2010).
1.1.1.3. Analyze past coral bleaching events in relation to mangrove proximity/health in Fiji and Tanzania	100%	Upon recommendation by the Global Advisory Group with support from UNEP/GEF, this activity was scaled back to *qualitative analysis* of mangrove/reef health relationships, because the potential relationship between healthy mangroves and reef bleaching events was not directly relevant to the primary focus on mangrove resilience (revised log frame). This analysis is included in the Tanzania and Fiji country reports (Cameroon lacks coral reefs).
1.1.1.4. Develop vulnerability assessment methodology	100%	Vulnerability assessment methodology was developed to identify which aspects of a mangrove ecosystem are already experiencing climate change impacts and which aspects are most vulnerable to future impacts. This methodology is included in the mangrove manual (Ellison 2012; see references for Output 1.1.1.2).
1.1.1.5. Field test vulnerability assessment methodology, including monitoring against baseline	100%	Field testing of the VA methodology was carried out in a number of sites: Cameroon, 3 sites (Ntem, Douala-Edea and Rio Del Rey); Fiji, 3 sites (Tikina Wai, Kubulau and Verata); Tanzania, multiple sites in the Rufiji Delta. Case studies from these pilots are included in the manual. Delayed start of the project reduced the time for monitoring but this did not affect methodology development as other approaches were used to detect past trends (e.g. stratigraphic core sampling).
1.1.1.6. Finalize vulnerability assessments for each project country	100%	Vulnerability assessments in pilot sites in the three countries were finalized and contributed to the mangrove manual (Ellison 2012; see references for Output 1.1.1.2).
Output 1.1.2. Adaptation strategies developed and implemented in each country	*100%*	***Achieved. A range of adaptation options were identified and strategies were developed based on results from the VAs and stakeholder workshops. Several of the strategies were implemented in pilot sites within the three countries and results are included in the manual.***
1.1.2.1 Accumulate and assess global experience on adaptation	100%	The Global Coordinator, Chief Scientist and members of the Global Advisory Group regularly provided the

of biodiversity; disseminate to project executants		country coordinators with examples drawn from other relevant adaptation activities around the world. The project's SharePoint web site, email, and regular teleconferences were employed for this purpose. WWF US also created an online adaptation platform and blog (http://www.adaptationportal.org and http://www.climateprep.org).
1.1.2.2 Identify adaptation options in each country that reconcile conservation with local needs	100%	Through stakeholder consultations, a range of adaptation options were identified based on the vulnerability assessments (e.g. designation of strategic protected areas, reforestation with "climate-smart" mangrove species, improve resource use efficiency in local communities).
1.1.2.3 Develop adaptation strategy for each country that reconcile conservation with local needs	100%	Initial adaptation strategies were developed based on results from the VAs and stakeholder workshops.
1.1.2.4 Implement pilot adaptation project in key sites	100%	Based on Outputs 1.1.2.2 and 1.1.2.3, site-specific adaptation pilot projects were implemented (e.g. Cameroon: strengthen gazettement process for the conversion of the Douala-Edea Reserve into a Marine and Terrestrial National Park, improved smokehouses; Fiji: improved protected status for mangroves at all sites, mangrove restoration with "climate smart species; Tanzania: replanting of 63 ha of degraded mangrove habitat and rice farms).
Output 1.1.3 Project best practices developed and available in an accessible form	100%	***Achieved. Best practices generated through the vulnerability assessments and adaptation trials in the countries were synthesized to produce the manual, which has been published by WWF US with support from WWF US, GEF and Hewlett Packard. The manual is available through the WWF website and from the Chief Scientist.***
1.1.3.1 Synthesize project experience into generalizable methodology for assessing vulnerability and adaptation of mangrove ecosystems	100%	In December 2010, experience and results of the vulnerability assessments and adaptation trials in the three countries were synthesized to produce the generalizable methodology for mangrove vulnerability assessment and adaptation planning. This activity was led by the Chief Scientist, with assistance from the global coordinator and others.
1.1.3.2 Develop training tools, based on generalizable methodology, including a CD-based training manual	95%	The training manual was the major tool produced and disseminated online and in hard copies. No CD-based training manual was produced. The methodology has contributed to Ecosystems and Livelihoods Adaptation Network (ELAN), launched in 2009 by WWF and IUCN to develop, share, and build capacity on scientific knowledge, good practices, tools and methods. In 2009, WWF US launched the Adaptation Learning Platforms (ALPs; www.adaptationplatform.org), a knowledge platform on adaptation, and Climate Prep (www.climateprep.org), an online blog for adaptation practitioners. The project created a mangrove adaptation group on ALPs for practitioners to collaborate and share information; and disseminated information about the project through postings on Climate Prep.
1.1.3.3 Publish project results in leading peer-review journals	100%	The project generated a number of technical papers, some of which were published in peer review journals

		(Ajonina et al. 2009, Ellison and Zouh 2012, Hansen et al. 2010, Jenkins et al. 2010). There is potential for additional publications.
1.1.3.4 Publish project results in popular media, and other formats appropriate for local communities	95%	Fiji: The project was extensively reported in the local media (TV, radio, newspapers) and via *Pacific Currents* (WWF South Pacific's bi-monthly newsletter), and a brochure produced (Mangroves People and Livelihoods Brochure). In all three countries, several stakeholder meetings involving local communities were held.
1.1.3.5 Present project results, including training materials, at regional and global meetings	100%	Project results have been presented at a number of regional and international conferences and workshops.
Output 2.1.1 Local stakeholders in three pilot countries are better equipped to respond to climate change impacts	***100%***	***By engaging local stakeholders in project activities and through training workshops and awareness-raising meetings, as well as production of the manual, the project has helped them to be better able to respond to climate change impacts by building capacity for vulnerability assessment and developing adaptation strategies in the three countries.***
2.1.1.1 Increase awareness among local stakeholders: govt., NGOs, and communities on biodiversity vulnerability and adaptation in each country	100%	Awareness-raising meetings were regularly undertaken in the three countries during the course of the project, and served to increase awareness about climate change impacts among local stakeholders from villagers to government officials. Awareness-raising was also facilitated through direct involvement of stakeholders in project activities.
2.1.1.2 Facilitate collaboration between local stakeholders, and in particular communities, and technical experts in vulnerability assessments and development and implementation of adaptation strategies	100%	In all three countries, local stakeholders, including communities, were engaged in execution of project activities such as monitoring and mangrove replanting in collaboration with technical experts. Training was provided to these stakeholders, for example, in Cameroon alone, about 1300 persons participated in training workshops. The project also used data previously gathered by some of these stakeholders. Key partnerships were forged by WWF with local NGOs and CBOs (Cameroon and Fiji) and villagers (Tanzania). Some monitoring activities involving local stakeholders are still continuing (at the time of the TE).
2.1.1.3 Convene national meetings to gather input from local stakeholders and showcase project results	100%	Stakeholder workshops were organized regularly in all three countries to review findings from the VA process and to help with the development and implementation of adaptation strategies and to present results.
2.1.2 Regional and global stakeholders use project's new guidelines	***90%***	***Regional and global stakeholders have expressed interest in the guidelines, but the extent to which these are being used could not be verified as no information was available. Based on interviews conducted during the TE, use of the guidelines has been limited. The Chief Scientist expressed disappointment with this situation.***
2.1.2.1 Test generalizable methodology and training materials throughout WWF's global network	80%	Although other WWF offices requested the methodology, there has been limited use within the WWF network. According to the Terminal report, key components of the methodology were adopted by other WWF offices in their work (Belize, Colombia,

		India, Madagascar, Senegal, Mozambique, Pakistan, and Vietnam) and strong connections were made with WWF offices in Belize and Madagascar, but the TE team was unable to find any information to verify if and the extent to which project results were being tested in these countries. The Tanzania WWF coordinator has used the VA methodology in another project in East Africa.
2.1.2.2 Facilitate partnerships between leading climate institutions and conservation organizations	100%	In addition to partnerships with conservation NGOs and CBOs in the countries during project execution, partnerships were also forged with a number of other organizations, including: Mangroves for the Future (WWF presented at their regional steering committee meeting in January 2010 and provided technical support for a training program on climate change in October 2010); IUCN's Pacific Mangroves Initiative (Chief Scientist served on the steering committee and helped to import lessons and methodologies from the WWF project); Secretariat of the Pacific Regional Environment Program (SPREP) used the Tikina Wai site in Fiji for a mangrove monitoring training workshop for countries and territories of the Pacific Islands region in November 2010; with IUCN, McArthur Foundation, CARE and IIED for the Ecosystems and Livelihoods Adaptation Network (ELAN).

Annex 8.1. Summary of Statement of Project Expenditure

(GEF Funding Only)

		UNEP BUDGET LINE	Estimated cost at design	Actual cost	Expenditure ratio (actual/planned)
		OBJECT OF EXPENDITURE			
10	**PROJECT PERSONNEL COMPONENT**				
	1100	**Project Personnel w/m**			
	1101	Global Coordinator (Grade 9)	63,295	67,836	1.07
	1199	**Total**	**63,295**	**67,836**	1.07
	1600	**Travel on official business (above staff)**			
	1601	Washington, DC - Yaounde, Cameroon	2,380	2,503	1.05
	1602	Washington, DC - Mafia Island, Tanzania	2,140	0	-
	1603	Washington, DC - Suva, Fiji	1,714	2,738	1.60
	1699	**Total**	**6,234**	**5,241**	0.84
	1999	**Component Total**	**69,529**	**73,076**	1.05
20	**SUB-CONTRACT COMPONENT**				
	2100	**Sub-contracts (MoU's/LA's for UN**			
		cooperating agencies)			
	2101	WWF-Cameroon	285,057	210,057	0.74
	2102	WWF-Fiji	282,731	280,374	0.99
	2103	WWF-Tanzania	280,505	288,014	1.03
	2199	**Total**	**848,293**	**778,445**	0.92
	2999	**Component Total**	**848,293**	**778,445**	0.92
50	**MISCELLANEOUS COMPONENT**				
	5100	**Operation and maintenance of equip.**			
		(example shown below)			
	5101	Rental & maint. of computer equip.			
	5102	Rental & maint. of copiers			
	5103	Repair & maint. of vehicles & insurance			
	5104	Rental & maint. of other office equip			
	5105	Rental of meeting rooms & equip.			
	5199	**Total**			
	5200	**Reporting costs (publications, maps,**			
		newsletters, printing, etc)			
	5201	Publications	1,000	2,489	2.49
	5299	**Total**	**1,000**	**2,489**	2.49
	5300	**Sundry (communications, postage,**			
		freight, clearance charges, etc)			
	5301	Photocopying	225	75	0.33
	5302	Postage & Shipping	225	235	1.04
	5303	Communications	299	1,094	3.66
	5304	Management Fee (5%)	46,429	44,021	0.95
	5399	**Total**	**47,178**	**45,424**	0.96
	5500	**Evaluation (consultants fees/travel/**			
		DSA, admin support, etc. internal projects)			
	5501	Audit	9,000		
	5581	Mid-Term Review		25,000	
	5582	Evaluation			
	5599	**Total**	**9,000**	**25,000**	2.78
	5999	**Component Total**	**57,178**	**72,913**	1.28
	TOTAL		**975,000**	**924,435**	0.95

Annex 8.2. Summary of Co-finance
(as at 31 December 2010)

Co financing (Type/Source)	IA own Financing (mill US$)		Government (mill US$)		Other (WCS Fiji) (mill US$)		Total (mill US$)		Total Disbursed (mill US$)
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	
– Grants									
– Loans									
– Credits									
– Equity investments									
– In-kind support					225,000	0	225,000	0	0
– Other WWF US cash co-finance	775,000	1,089,431					775,000	1,089,431	1,089,431
Totals	**775,000**	**1,089,431**			**225,000**	**0**	**1,000,000**	**1,089,431**	**1,089,431**

Annex 9. The Evaluators

SHERRY HEILEMAN, PhD (Lead consultant)

Profile

Technical background in marine biology, fish stock assessment and management (including ecosystem approach), integrated marine and coastal ecological/environmental assessments, project development and evaluation, transboundary diagnostic analysis, science writing and editing.

Worked at national, regional, and international levels (Caribbean, Latin America, East and West Africa, Southeast Asia). Over 10 years experience working with GEF projects (Biodiversity and International Waters), including project design, evaluation, coordination, and transboundary diagnostic analysis (TDA). Among these were Millennium Ecosystem Assessment; Caribbean Sea Ecological Assessment; Bay of Bengal LME Project (mid-term evaluation and development of indicators); Caribbean Sea LME project (preparation of TDA); Artibonito River Basin Project (project design); Gulf of Mexico LME Project (Stakeholder analysis and project design); Southwest Indian Ocean Fisheries Project (Retrospective analysis of demersal fisheries); Transboundary Waters Assessment Project (coordinator, LMEs component of medium size project; project design, full size project; and coordinator, LMEs and Open Ocean components of full size project, ongoing); and Canary Current LME Project (mid-term evaluation, ongoing). She has been involved in a number of other professional activities at regional and international levels.

Education

University of Miami Rosenstiel School of Marine & Atmospheric Science (Florida, USA): PhD, Marine Biology and Fisheries.

University of the West Indies (Trinidad): MPhil and BSc degrees.

Employment

International consultant (2003–present); United Nations Environment Programme, Nairobi, Kenya (1999 – 2002); National Autonomous University of Mexico, Institute of Marine Science & Limnology, Mexico City, Mexico (1995 –1999); Institute of Marine Affairs, Trinidad & Tobago (1980 – 1995).

ANNADEL CABANBAN, PhD (Supporting consultant, Fiji report)

Dr. Annadel Salvio Cabanban is a marine biologist who graduated from the University of the Philippines (Diliman, Quezon City) and James Cook University (Australia). She was in the academe since 1979 to 2006 in Malaysia and Philippines. Dr. Cabanban has also coordinated implemented, coordinated, and participated in regional projects at the Regional Coordinating Unit for the Seas of East Asia, United Nations Environment Programme (UNEP), interspersed during this period. She has co-managed the ASEAN-Australia Living Coastal Resources Project at Silliman University (1991-1993) and managed the Sulu-Sulawesi Marine Ecoregion Conservation Programme of the World Wide Fund for Nature Malaysia (2006-2008). She has, since 2006, been involved in national and regional projects that bridge marine science with conservation and policy.

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