



United Nations Development Programme

ENVIRONMENT AND ENERGY

SUSTAINABLE LAND MANAGEMENT AND BIODIVERSITY CONSERVATION FOR COMMUNITY-BASED ADAPTATION

A Comparative Study of the UNDP-GEF Community-Based Adaptation Portfolio in Samoa



UNDP partners with people at all levels of society to help build nations that can withstand crises, and drive and sustain growth that improves the quality of life for everyone. Present in 177 countries and territories, we offer global perspective and local insight to help empower lives and build resilient nations.



gef GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

GEF unites 182 countries in partnership with international institutions, non-governmental organizations (NGOs), and the private sector to address global environmental issues, while supporting national sustainable development initiatives. Today, GEF is the largest public funder of projects to improve the global environment. As an independently operating financial organization, it provides grants for projects related to biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants. Since 1991, it has achieved a strong track record with developing countries and countries with economies in transition, providing \$9.2 billion in grants and leveraging \$40 billion in co-financing for over 2,700 projects in over 168 countries.

Authors: Charles Nyandiga, UNDP; Bertrand Tessa, Consultant

Layout: Bibi Singh, Carrie Tsuan

Editor: Caitlin Connelly

FOREWORD

Climate change is one of the most serious and challenging issues of our decade. Millions of people and ecosystems are experiencing harsh conditions resulting from the global warming. While mitigation to climate change offers opportunities to remedy increasing greenhouse gases (GHG), national mitigation pledges still fall short of the objective set by governments to keep global warming below 2°C. Without increased action, this shortfall commits mankind to an inexorable increase in greenhouse gas emissions in the near future until the 'gigatonne gap' (between what countries have pledged and what scientists say is necessary) is closed. Alongside low-carbon development strategies, adaptation to climate change is a promising path to securing investments in poverty reduction, food security, gender equality, child and maternal health, and environmental sustainability, and to ultimately achieving the Millennium Development Goals. The United Nations Development Programme (UNDP) is working on a wide range of initiatives to mainstream climate change adaptation into human development, including the UNDP-GEF Community-Based Adaptation (CBA) Programme.

The CBA Programme is a five-year (2007-2012) initiative funded by the Global Environment Facility (GEF), the Governments of Japan and Switzerland, and the United Nations Volunteers. It is working to reduce the vulnerability and strengthen the adaptive capacity of local communities to climate change in 10 pilot countries in Africa, Asia and the Pacific, Latin America and the Caribbean. The programme collaborates with national partners, United Nations Volunteers, United Nations agencies, UNDP country and regional offices, and national GEF Small Grants Programme (GEF SGP) staff to carry out adaptation work with community organizations on the ground. GEF SGP provides the essential country-level management structure and delivery mechanism for the programme. This inclusive approach streamlines community access to microgrants, engages a diverse group of national stakeholders in community projects and promotes grassroots-based solutions to climate change risks.

The CBA Programme was primarily set up to provide a systematic analysis of the methodological approaches and to test local level adaptation measures in various geographical areas and ecosystems globally. The programme has made progress to this end, with specific insights evolving from each pilot country. This report analyses and summarizes Samoa's experience in developing and implementing CBA projects. More importantly, it presents innovative practices and emerging lessons resulting from the implementation of a cluster of projects in the area of sustainable land management and biodiversity conservation. Ideally, the results will be disseminated, replicated and brought to scale for use in vulnerable communities facing similar conditions across the globe.

Yannick Glemarec
UNDP-GEF Executive Coordinator

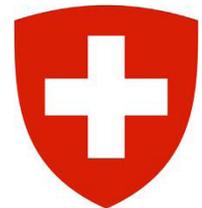
TABLE OF CONTENTS

FOREWORD	iii
TABLE OF CONTENTS	iv
ACKNOWLEDGEMENTS	v
ACRONYMS	vi
Introduction	7
Climate change risks in Samoa	7
Adaptation measures in selected CBA projects	9
Impacts of CBA interventions on communities and their ecosystems	10
Enabling factors	12
Challenges and risks	15
Dissemination and replication strategies	17
Financial leverages	17
Lessons learned	17
Conclusion	19
REFERENCES	20

ACKNOWLEDGEMENTS

Bertrand Tessa (Research Analyst, World Resources Institute) and Charles Nyandiga (Coordinator, UNDP-GEF Community-Based Adaptation Programme) prepared this report under the supervision of Nick Remple (Senior Technical Advisor, UNDP-GEF/BDP Communities Cluster). Anna Lisa Jose (Programme Associate, UNDP-GEF Community-Based Adaptation Programme) provided logistical support and raw data from project's tracking tools.

The report benefited from the valuable contributions and collaborative efforts of many people, including CBA Project Management Unit, National GEF Small Grants Programme Coordinators, and United Nations Volunteers.



ACRONYMS

CBA	Community-Based Adaptation
CBO	Community-based organization
CIMP	Coastal infrastructure management plan
GEF	Global Environment Facility
IAS	Impact Assessment System
NAPA	National Adaptation Programme of Action
NGO	Non-governmental organization
OP	Operational Programme
PIA	Participatory Impact Assessment
SGP	Small Grants Programme
SIDS	Small Island Developing States
SLM	Sustainable land management
UN	United Nations
UNDP	United Nations Development Programme
VRA	Vulnerability Reduction Assessment

INTRODUCTION

Samoa is a Small Island Developing Country located in the Southwest Pacific. The climate is tropical with uniform temperatures ranging between 24°C–32°C, and average precipitation of about 3,000mm. As other Pacific Island countries, Samoa during the 20th Century has experienced an increase in average temperatures—a mean increase of 0.59°C—and a decrease in precipitation by 49.28mm. Climate change projections from the First National Communication (FNC 1999) and the United Nations Framework Convention on Climate Change (UNFCCC) suggest that this pattern will continue and accelerate with increasingly higher occurrences of high intensity, but reduced overall annual rainfall, increased average temperature, sea-level rise, and increased tropical cyclone frequency and intensity. As a semi-subsistence nation with approximately 70 percent of the population and infrastructure located in low-lying coastal areas, these projected changes are expected to pose significant risks to community livelihoods and ecosystems across the country.

In response to these threats, the UNDP-GEF Community-Based Adaptation (CBA) Programme has piloted five adaptation projects aiming to reduce the vulnerability and increase the adaptive capacity of communities and their ecosystems to the adverse impacts of climate change. The Samoan National Adaptation Programme of Actions (NAPA 2005) identified nine priority sectors for adaptation, including agriculture and food security, water, biodiversity, health, forestry, coastal infrastructure and environment, tourism, urban settlement and village communities. The UNDP-GEF CBA portfolio in Samoa has predominately consisted of adaptation interventions targeting sustainable land management and biodiversity conservation, though most projects have followed a cross-sectoral approach to include interventions from different other priority sectors.

This report analyses and summarizes Samoa's experience in developing and implementing CBA projects. It builds on a cluster of three projects deliberately selected to reflect the full range of CBA's work in Samoa. The projects include (1) 'Community-based adaptation against flooding and sea-level rise' in Safai Village'; (2) 'Community-based adaptation for Lelepa Village' in Lelepa Village; and (3) 'Reduce the impacts of climate change-driven erosion through protection and conservation of mangroves, ecosystems and coral reefs' in Fasitootai. Successively, the study reviews and contrasts climate change risks and adaptation responses in selected projects, the impacts on communities and their ecosystems, the enabling factors for successful adaptation, the challenges encountered, dissemination and replication strategies and lessons learned.

CLIMATE CHANGE RISKS IN SAMOA

CBA projects in Samoa have presented very similar climate change-related risks compared to other CBA pilot countries. This was mainly due to the small size of the country (roughly 2,934 square km). The major climate change-related risks in Samoa are flooding and coastal erosion. They are separate problems, but strongly interrelated in terms of their origin and impacts on communities and their ecosystems.

Safai Village is located at the extreme north of the Island of Savaii and has a population of less than 400, all living from farming and fishing. The climate is typical for Samoa, with a rainy season from October to March and a dry season from April to September. The village fronts onto the sea with the outer reef approximately 200m from the beach. Behind the village is part of the largest wetland in Savaii Islands consisting of mixed coastal swamp and mangrove forests. It also counts among the main nurseries for juvenile fish on the northern coast of Savaii (CIMP 2007). Coastal erosion is primarily driven by increasing intensities of storms, declining resilience of buffering coral ecosystems and wetland plants, and to a lesser extent, increasingly erratic rainfall. It poses significant risks to mangroves ecosystems and to nearshore corals. Flooding arises from increasingly intense erratic rainfall combined with non-climate factors (baseline), such as the development of roads without culverts or drains, and is exacerbated by sea-level rise as the intrusion of sea water into the wetland increases. Flooding is largely associated with the damage and incapacitation of the inland access roads for transporting vital goods and services. In addition to rising tides resulting from sea-level rise, flooding also contributes to inundation and destruction of houses and livelihoods such as agricultural crops and livestock.



Climate change-driven coastal erosion threaten the small communities in Samoa.

UNDP/UNDP-GEF CBA Samoa

Lelepa Village is located north of Savaii Island on low-lying coral sand beach. The village has access to vital services such as water, telecommunication and electricity. The majority of the residents rely on subsistence farming and fishing for their livelihoods (CIMP 2007). Flooding is primarily associated with heavy rainfall and results in frequent inundation of the main access road. This renders the road unsafe for community villagers who use the road access to their homes and farmlands. Flooding of the road also compromises the community's access to services by destroying vital infrastructure along the road such as telecommunication, electricity poles and water supply system. Apart from inland hazards, the coast is also highly vulnerable to coastal erosion as a result of lack of adequate coastal defense systems, intensive rainfall and cyclones.

Fasitootai is located on the northwest shore of Upolu Island, and has population of about 2,134, living mostly on subsistence and semi-subsistence farming and fishing (CIMP 2007). The central risks associated with climate change are coastal erosion and ecosystem (mangrove and coral reef) degradation. The mangroves and the coral reef are very important to community livelihoods: reefs provide habitat to numerous fish species and serve as a barrier to communities—their assets and their infrastructure—from storm surges during cyclones; and mangroves constitute breeding grounds for fishes in the reef, and provide communities with medicines and various other livelihoods. Heavy rainfall and increasingly intense cyclones contribute to coastal erosion resulting in the degradation of mangrove ecosystems. Similarly, increasing water temperature leads to coral bleaching, which contributes to the degradation of coral reef and sedimentation from coastal erosion. This results in significant reduction in wetland biodiversity and the quantity of fish and other nutritious food that the community relies upon for their livelihoods, increasing its vulnerability to climate change.

In general, Samoa is exposed to two major climate change risks—flooding and coastal erosion— affecting communities and their ecosystems depending on specific environment and socio-economic activities. In addition to non-climate (baseline) factors, flooding is mainly driven by erratic rainfall periodically associated with storm surges and sea-level rise. The impacts are more pronounced in community infrastructure—houses, roads, water system, electricity and telecommunication—and livelihoods—destruction of agricultural crops and livestock. Coastal erosion results from isolated or combined actions of heavy rainfall, sea-level rise and intermittent cyclones. The corresponding adverse impacts are predominantly detrimental to the island's biodiversity and infrastructure (roads). In the face of these climate hazards on communities and their ecosystems, the UNDP-GEF CBA Programme in Samoa has sought to reduce vulnerability and increase adaptive capacity in participating communities by promoting innovative adaptation measures.

ADAPTATION MEASURES IN SELECTED CBA PROJECTS

The central tenet of the UNDP-GEF CBA Programme in Samoa is to generate and promote effective and innovative adaptation techniques, methods or strategies with high potentials for replication, dissemination and up-scaling. The Adaptation measures that have been carried out in Samoa can be organized into 'hard' and 'soft' interventions¹.

In Safai Village, hard adaptation measures such as the replacement of the crossing rock bridges with appropriate walking bridge, have been used to address flooding and to restore regular flushing of water between the wetland and the sea. Other hard adaptation measures to flooding, cyclones and storm surges include the construction of retentions walls along the edge of the wetland. These hard adaptation measures have been associated with soft adaptation interventions to coastal erosion, which consist of replanting the wetland and mangroves along the edge of the wetland stream and deepening the passage of water under the bridge.

Lelepa Village has also used a combination of soft and hard adaptation measures to address flooding and coastal erosion. The community replanted the edges of the wetland (soft adaptation) to strengthen coastal defense and reduce flooding of residential houses and other land uses, and to improve the riparian ecosystem critically important to fish and wildlife. This measure was associated with interventions that upgraded and raised the road crossing the wetland (hard adaptation) to allow for a safe and passable level through the installation of proper drainage system/culverts to allow free flow of water.

Adaptation measures in Fasitootai have targeted the protection and the restoration of the coastal ecosystem (mangrove and coral reef) through soft interventions that address flooding and coastal erosion. These measures include the deepening of the stream-lagoon mouth that was filled with sand as a result of storm surges to minimize the impacts of breaking waves during cyclones and to ensure protection against coastal erosion and flooding. It also allows for the spawning of fish and other marine life inside the mangrove. These measures also include the replanting of the coral reef and mangroves to reinforce natural coastal buffer and the stream-lagoon mouth against erosion.

Adaptation measures in Samoa have been very similar among projects. This stems particularly from the small size of the country in relation to the unique set of climate change risks encountered—land degradation and coastal erosion.

Several similarities and differences can be highlighted among the three projects in Samoa.

- The Samoa adaptation interventions have all aimed to (1) facilitate water flushing from the wetland to the sea, and (2) reinforce natural coastal buffer against coastal erosion;
- Almost all the CBA projects in Samoa have combined soft and hard adaptation measures to address risks associated with climate change. Hard adaptation measures have mostly focused on infrastructure management, such as upgrading work roads or constructing retention walls, while the soft adaptation measures have revolved around coastal ecosystem restoration such as replanting wetland edges;
- The most widely implemented adaptation measure consisted of replanting the wetland edges to reinforce the natural coastal buffer—soft adaptation. This intervention was carried out by all of the CBA projects;
- Many of the CBA projects in Samoa have used different adaptation measures to address the same climate change risk, particularly adaptation interventions to flooding. For example, in Safai Village this threat was addressed through the construction of retention wall at the edges of the wetland (hard adaptation), while in Lelepa Village it was handled by replanting the edges of the wetland to reinforce natural coastal buffer (soft adaptation).

¹ In this report, we differentiate between 'hard' adaptation interventions, which imply the construction or the management of infrastructure, and 'soft' adaptation interventions, which focus on the restoration of the natural ecosystem.

TABLE 1: COMPARISON OF ADAPTATION IN THE SELECTED CBA PROJECTS IN SAMOA

CLIMATE CHANGE RISK	LOCATION	IMPACTS ON COMMUNITIES' LIVELIHOODS/ECOSYSTEMS	ADAPTATION MEASURES
FLOODING	Safai Village	Destruction and incapacitation of the access road to vital goods and services	<ul style="list-style-type: none"> • Replacement of the crossing rock bridges with appropriate walking bridge • Construction of retention wall along the edge of the wetland
	Lelepa Village	Incapacitation of the access road and vital infrastructure (i.e., water supply system) and destruction of crops	<ul style="list-style-type: none"> • Replanting the edges of the wetland • Upgrading and raising the work road crossing the wetland
COASTAL EROSION	Safai Village	Destruction of mangroves and near-shore corals	<ul style="list-style-type: none"> • Replanting the wetland and mangroves along the edge of the wetland stream • Deepening of the passage under the bridge
	Lelepa Village	Destruction of the natural ecosystems	<ul style="list-style-type: none"> • Replanting the edges of the wetland • Upgrading and raising the work road crossing the wetland
	Fasitootai	Destruction of the mangrove ecosystems/reduction in wetland biodiversity	<ul style="list-style-type: none"> • Deepening of the stream-lagoon mouth • Replanting of the coral reef and the mangroves

IMPACTS OF CBA INTERVENTIONS ON COMMUNITIES AND THEIR ECOSYSTEMS

The evaluation of the impacts of implemented adaptation measures on communities and their ecosystems is a central component of the UNDP-GEF CBA Programme. Two assessment methods were used to evaluate the impact of CBA projects on communities and their ecosystems: the **Vulnerability Reduction Assessment (VRA)** and the **Impact Assessment System (IAS)** (see Box 1). The VRA scores the communities' perception of their current and future vulnerabilities and adaptive capacity at a specific point of time, and discuss the barriers to adaptation as conceived by the communities themselves. The IAS measures the contribution of CBA interventions to global environmental benefits.

BOX 1: OVERVIEW OF UNDP GEF CBA ASSESSMENT METHODS

Vulnerability Reduction Assessment (VRA) is a form of Participatory Impact Assessment (PIA) that measures a community's perception of its vulnerability and adopted adaptation measures to climate change. Perception of change is captured from changes in VRA scores—ranging from zero to five, five meaning high impact or high confidence and zero referring to low impact or low confidence—obtained from communities' responses to a set of four questions tailored to locally-relevant vulnerability factors, and obtained by consensus during a series of three community meetings over the duration of a CBA project (UNDP 2008a). Below is an example of VRA questions asked in the context of flooding and coastal erosion as climate risks:

1. **Assessing current vulnerability** – How serious are the current impacts of flooding and coastal erosion on your livelihoods?
2. **Assessing future climate risks** – How serious the impacts on your livelihoods will be if flooding and coastal erosion become twice as intense?
3. **Formulating an adaptation strategy** – What are the barriers (institutional, financial, technical, etc.) that stand in the way of reducing flooding and coastal erosion?
4. **Continuing adaptation process** – How confident are you about these activities continuing to reduce flooding and coastal erosion risks after the project lifetime?

Impact Assessment Systems (IAS) is an indicator required by the Global Environment Facility (GEF) in CBA projects to monitor improvements in environmental conditions. The IAS encompasses the areas of biodiversity conservation and sustainable land management. For biodiversity conservation, IAS reports on the number of critically endangered species, endemic species and ecosystems protected or under protection. In the context of sustainable land management, IAS shows the number of hectares of land restored or sustainably managed.

1. Variations in communities' perception of current and future vulnerabilities, and their adaptive capacities

The VRA was carried out three times over the duration of the selected CBA projects in Samoa. In general, a very consistent pattern emerges from the VRA scores collected from community members. During the project formulation stage, the communities reported feeling highly vulnerable to current and future climate change risks, with VRA scores around 1 and 2. One year after the implementation of the projects activities, community members felt less vulnerable with an increase in the VRA scores to approximately 3.5. As the CBA projects neared completion, community members felt that projects' activities have brought positive change in regard to their adaptive capacity. In Safai Village, for example, community members reported that the new bridge and rock wall are very effective in protecting the church and stopping coastal erosion during flooding.

2. Livelihoods and global environmental benefits

CBA projects in Samoa have generated important global environmental benefits in the areas of biodiversity conservation and land restoration. The majority of the projects have combined interventions in both areas. This is illustrated by the CBA projects in Safai Village and Fasitootai, in contrast to the CBA project in Lelepa Village, which only addressed land degradation issues. Notwithstanding, they have all generated important livelihoods and global environmental benefits as summarized in Table 2. One example is the rehabilitation of natural ecosystems such as mangroves and coral reefs, and the enhancement of the natural flushing of the lagoon that led to the recovery of the marine biodiversity in the area. This has happened alongside increases in consumption and income from fishing, suggesting an improvement in community livelihoods and ecosystems.

TABLE 2: LIVELIHOOD AND GLOBAL ENVIRONMENTAL BENEFITS IN SELECTED PROJECTS

PROJECT LOCATION	INDICATORS	
	GLOBAL ENVIRONMENTAL BENEFITS	
	BIODIVERSITY CONSERVATION	LAND RESTORATION
SAFAI VILLAGE	<ul style="list-style-type: none"> • 10 globally significant endangered/threatened species under protection • 22 hectares of globally significant biodiversity lands under protection (10 hectares of wetland/mangrove and 12 hectares of marine area) 	5 hectares of degraded land restored
LELEPA VILLAGE		16.6 hectares of land under sustainable management supported increased livelihood benefits
FASITOOTAI	<ul style="list-style-type: none"> • 10 globally significant bird species protected • 2 hectares of mangrove area under protection • 75% of coral reef conserved • 3 management plan adopted 	<ul style="list-style-type: none"> • 4 hectares of land under sustainable management • 0.5 hectare of eroded land restored

ENABLING FACTORS

The CBA programme builds on key pillars to achieve successful adaptation to climate change. These five pillars—project formulation, community ownership, policy on influence, gender mainstreaming and capacity building—affect the results of each project.

1. Project formulation

The formulation of CBA projects in Samoa was similar on many fronts, including the methods used to identify key problems to be addressed and the appraisal of project activities. The formulation was generally carried out under a multi-stakeholders approach involving a variety of actors, and centered on a national Project Steering Committee composed of representatives of different sectors of the community—Council of Chiefs, women committee and youth—acting as the decision-making body on behalf of the entire community. Below are the main steps of the formulation process in Samoa.

- **Identification of the problems** – Through extensive consultations of community members, climate change experts and government officials during the development of the Coastal Infrastructure Management Plan (CIMP) 2007 and the National Adaptation Programme of Action (NAPA 2005);
- **Selection of priority activities** – CBA Project Steering Committee through further consultations with community members and climate change experts;
- **Development of project proposal** – Through the CBA Project Steering Committee with occasional assistance of project consultants; and
- **Project appraisal** – Consultation meeting between Project Steering Committee and community members followed by field visits to appraise the issues identified and measures prescribed.

2. Community ownership

Community ownership is at the heart of the CBA programme in Samoa. The community leads each step of the process—planning, implementation and monitoring. It oversees and manages the entire process through the Council of Chiefs and the Project Steering Committee. The Council of Chiefs has overall control and authority over the village, and is charged with ensuring transparency and proper use of resources. The Project Steering Committee is composed of representatives of different village groups—Council of Chiefs, women committee, untitled men², church pastors, youth groups and consultants—and is responsible of all interventions pertaining to planning, implementation and monitoring of adaptation activities, as well as capacity building and awareness raising activities. Table 3 shows some elements of ownership within the selected projects.

TABLE 3: ELEMENTS OF COMMUNITY OWNERSHIP IN SELECTED CBA PROJECTS

PROJECT STAGE		SAFAI VILLAGE	LELEPA VILLAGE	FASITOOTAI
FORMULATION		<ul style="list-style-type: none"> • Identification of the problems • Selection of priority activities • Project development and appraisal 		
IMPLEMENTATION	IN KIND	Labor work estimated at \$10,000	<ul style="list-style-type: none"> • Implementation of soft adaptation measures • Assistance of external engineer in infrastructure works by community members with engineering skills • Implementation of awareness program • Provision of heavy work equipment by business families 	<ul style="list-style-type: none"> • Implementation of awareness and education programs • Development of management plan • Organization of anti-litre clean up campaign • Development of mangrove replanting program
MONITORING/EVALUATION		<ul style="list-style-type: none"> • Monitoring of the adaptation activities implemented by the contractor • Participation in VRA evaluation process 	<ul style="list-style-type: none"> • Maintenance of infrastructure works • Participation in VRA evaluation process 	<ul style="list-style-type: none"> • Monitoring of mangrove replanting program • Participation in VRA evaluation process

3. Influence on policy

The influence of the CBA interventions on policies and policymakers has varied between projects. Three groups of projects emerge from the Samoan portfolio in respect to their impacts on policies/policymakers. First, there were projects with no clear evidence of policy targets. This was specifically the case in Lelepa Village, where no clear policy influence emerged from the suite of activities implemented. Second, there were projects with relative influence on existing policies. This is illustrated by the CBA project in Safai Village, which contributed to the adoption of a policy prohibiting the dumping of rubbish into wetlands. Last, some CBA projects were entirely driven by policy goals. The CBA project in Fasitootai provides a good example in this respect; four important policies focusing on coastal management were developed, namely 'Climate Change Resilient Coastal Natural Resource Management Plan', 'Coastal Infrastructure Management Plan', 'Memorandum of Understanding

2 Men with no land ownership

declaring Mangrove, Coral Reef and Ecosystems as Special Protected Management Area, and 'Anti Litter and Waste Deposit Management Plan.' These policies have brought together all stakeholder groups in a collective effort to successfully manage protected areas and ecosystems.

4. Gender mainstreaming

Gender mainstreaming into CBA activities in Samoa is largely embedded into the socio-cultural structure of the Samoan society. Each village is governed by a 'Council of Chiefs' that has overall control and authority over the village, but who consults with several other committees, including a women committee, untitled men, and a youth organization, all reporting to the Council of Chiefs. All committee members are involved in the decision-making process concerning the development of the village. This approach is integrated into all the CBA projects, where specific consideration is given to the concerns of each social group over the project's cycle.

5. Project sustainability

The majority of the CBA projects in Samoa have been implemented over an average of two years. To ensure the sustainability of CBA interventions beyond the project lifetime, the Council of Chiefs committed to keeping the Project Steering Committees in place to allow the implementation and monitoring project activities to continue. For example, in Lelepa Village, Project Steering Committee (under the oversight of the Council of Chiefs) is ensuring the sustainability of the CBA activities through cleanup programme, and maintenance and continuous planting of the wetlands. In some cases, the Council of Chiefs undertakes a more important sustainability role. This is the case in Lelepa Village and Safai Village, where the Council of Chiefs looks for other funding avenues to maintain and expand project activities and the mayor is tasked with regular project monitoring.

6. Capacity building and awareness raising

Capacity building and awareness raising are both central components of the UNDP-GEF CBA programme. The rationale behind these interventions is to empower communities to better understand the risks associated with climate change and to efficiently respond to these challenges. Not all of the CBA projects in Samoa included both capacity building and an awareness raising interventions. Some have included either capacity building (Lelepa Village) or awareness raising (Fasitootai). Others have included a combination of both interventions (Safai Village). The target audience includes the Council of Chiefs, women committee, youth and religious organizations, as well as other policy discussants from the government. Table 4 provides an overview of capacity building and awareness raising interventions in the selected CBA projects in Samoa.

TABLE 4: OVERVIEW OF CAPACITY BUILDING AND AWARENESS RAISING INTERVENTIONS IN THE SELECTED CBA PROJECTS

CBA PROJECT	INTERVENTIONS	
	AWARENESS RAISING	CAPACITY BUILDING
SAFAI VILLAGE	Distribution of writing materials (pamphlets) on climate change risks and adaptation measures	Organization of training workshops on replanting of mangroves
LELEPA VILLAGE		Organization of training workshops on fundraising strategies
FASITOOTAI	<ul style="list-style-type: none"> • Competition in song, play, and writing to get the message across • Repetitive briefing of policymakers on climate change risks and adaptation responses • Introduction of climate change into government primary and kindergarten school curriculum 	

CHALLENGES AND RISKS

The CBA programme in Samoa has been confronted with a variety of institutional, financial, socio-cultural, technical challenges, and exposed to a number of risks. Table 5 gives an overview of the constraints encountered in the selected CBA projects.



Community members restored land and conserved biodiversity, previously eroded by the ocean, by replanting mangroves.

UNDP/UNDP-GEF CBA Samoa

TABLE 5: CHALLENGES IN SELECTED CBA PROJECTS IN SAMOA

CHALLENGE/RISKS		COPING STRATEGIES		
		SAFAI VILLAGE	LELEPA VILLAGE	FASITOOTAI
INSTITUTIONAL	Lack of commitment from the village council to monitor and maintain the works	The Project Adviser assists the village council in the monitoring and maintenance for at least the first three years after the project		
	Institutional and legal constraints to obtain authorizations/permits necessary to implement the activities		Project activities were aligned with the Coastal Infrastructure Management Plan and involved government staff during the implementation	
	Lack of coordination between suppliers of resources (electricity and water) and consumers			
	Enforcement of management plans			Enforcement oversight provided by Council of Chiefs
SOCIO-CULTURAL	Lack of human and other non-financial resources		Village committee committed to in-kind support including labor and materials	Village committee committed to in-kind support in terms of materials (rocks, fill materials) and labor
	Land acquisition for the creation of protected areas			Land owners compensated and involved in project implementation

TECHNICAL	Negative impacts of the construction of the rock walls on the wetlands	Use of environmentally friendly materials for the construction of the rock wall		
	No management plans to guide effort to protect and improve management of coastal zone			Management plans developed by the village committee
FINANCIAL	Fluctuation of exchange rate	Incurred by the project	Incurred by the project	Incurred by the project

DISSEMINATION AND REPLICATION STRATEGIES

The rationale behind CBA projects is to generate lessons and best practices for dissemination, replication and up-scaling. In Samoa, a variety of strategies has been used to disseminate the lessons generated by the CBA projects for replication. These include mainstreaming lessons into national policies processes, contribution of projects participants to local networks, use of electronic media (e.g. posting on websites), and screening of films. In Lelepa Village, for example, a participatory film was developed by the CBA project and screened in seven surrounding CBA villages, allowing community members to share their experiences.

FINANCIAL LEVERAGES

UNDP-GEF CBA Programme seeks to leverage additional financial supports to sustain and strengthen community adaptation initiatives. In Samoa, the CBA programme has been very successful in leveraging co-financing. In Safai Village, for example, the Government of Australia (through AusAID) matched UNDP-GEF funding, contributing \$30,000 for the retention wall and walking bridge construction, and the bridge deepening. Similarly, AusAID provided co-financing in Lelepa Village that helped build 80 percent of the access road.

LESSONS LEARNED

Several lessons emerge from the implementation of the CBA projects in Samoa:

1. To influence policy, adaptation interventions should go beyond the sole inclusion of policymakers in the project

The inclusion of policymakers in adaptation interventions should theoretically provide an avenue to influence policies at different levels. However, this assumption may not be easily applied to every context. In Samoa, for example, some projects involved local policymakers, but only relatively achieved the policy influence requirement that underpins all the UNDP-GEF CBA interventions. This highlights the important need to go beyond the simple inclusion of policymakers, and to include clear and measurable policy targets early in the project design.

2. Social construct can provide avenues for gender mainstreaming

The CBA experience in Samoa demonstrates that adaptation interventions can largely draw upon the socio-cultural system of governance within a community to achieve cross-sectoral goals such as gender mainstreaming. In Samoa, as indicated before, the society is organized into several committees (including a women committee) all playing an influential role in every decision

concerning the village. This enables vulnerable actors, such as women, youth and children, to have their concerns taken into consideration and addressed in every subject at stake. Such opportunities are often overlooked during the planning and execution of projects, and should be leveraged to ensure successful adaptation to climate change.

3. Institutionalizing monitoring is essential to sustain infrastructure works

Samoa is exposed to frequent climate change risks with potential adverse impacts on infrastructure that affect local communities. This underscores the need to sit monitoring activities within local institutions to ensure sustainability of adaptation interventions. While Samoa's institutional structure is well suited to accommodate such a critical need (the village mayor participating in the steering committee is tasked with monitoring infrastructure works), it should not be taken as a given that monitoring will be done at this level. Therefore, this question should be raised and promoted when planning community-based adaptation interventions.

4. Integrating donors-funded initiatives with local policies increases effectiveness

As much as possible, donor-funded interventions should be integrated or aligned with local policies to increase their acceptance and effectiveness. This is proven true in Samoa, where almost all the CBA interventions built upon the Coastal Infrastructure Management Plan (CIMP) during their formulation and implementation. Though additional consultancies were carried out, building upon the CIMP has increased effectiveness and complementarity of the programme, in particular with respect to political buy-in of the planned activities.

5. Currency fluctuations should be factored into project design to avoid financial risks

The UNDP-GEF CBA Programme has been implemented in the context of the global financial crisis characterized by large fluctuation rates in currencies. CBA projects in Samoa incurred financial losses due to inflation and fluctuation not factored into the projects design. This has led to significant funding reductions and subsequent bottlenecks in the implementation of different activities.

6. Tangible benefits to communities drive dissemination and up scaling of adaptation experiences

The dissemination and uptake of lessons and practices from certain projects have been an important challenge in Samoa, in particular for infrastructure management project, which did not provide direct and tangible benefits to community members. Such projects were not well received by local community members, what have compromised the dissemination and replication of the lessons learned. In comparison to other types of CBA projects, this suggests that provision of livelihood benefits to communities can be essential in CBA projects to ease acceptability and promote dissemination and replication of experiences.

7. The robustness of the CBA assessment methods is yet to improve

The UNDP-GEF CBA Programme uses two methods to assess the impacts of its interventions on communities and their ecosystems. In Samoa, these methods were subject of concerns during the evaluations process. While the VRA method was proven useful in capturing the perception of change of communities' current and future vulnerabilities, it appeared somewhat complex and confusing to communities to translate their perception into a figure. The robustness was also questioned give the rationale behind the method, which tends to reduce the whole concept of vulnerability into a single quantitative figure. The robustness of the IAS was also challenged, since the methodology emphasizes the quantity of degraded land restored, but overlooks the quality of such a restoration in terms of land productivity and species richness.

CONCLUSION

The UNDP-GEF CBA Programme in Samoa has been very successful in reducing the vulnerability of communities and their ecosystems to the adverse impacts of climate change, and in increasing their adaptive capacity. Through a participatory process, starting with the development of the Coastal Infrastructure Management plan, major climate change risks have been identified and priority sectors selected for the CBA interventions. These interventions have revolved around infrastructure management and biodiversity conservation, and included a variety of context specific soft and hard adaptation measures. In this regard, each CBA project has built upon a set of enabling factors, that include community ownership, gender mainstreaming, capacity building and awareness—all contributing to project sustainability. However, the implementation of the projects has been confronted with a number of challenges that will potentially inform future CBA interventions.



Community members designed and constructed shoreline protection, such as rock barriers, to stabilize the coastline.

UNDP/UNDP-GEF CBA Samoa

REFERENCES

Government of Samoa, Ministry of Natural Resources, Environment and Meteorology. 2007. *Coastal Management Plan*.

Government of Samoa, Ministry of Natural Resources, Environment and Meteorology. 2005. *National Adaptation Programme of Action*

Government of Samoa, Department of Lands, Survey and Environment. 1999. First National Communication to the United Nations Framework Convention on Climate Change.

United Nations Development Programme. 2008. "A Guide to Vulnerability Reduction Assessment". UNDP working paper. United Nations Development Programme. New York.



gef GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

We would like to recognize the many partners who have contributed to the projects outlined in this publication, and thank the Global Environment Facility (www.thegef.org) along with the Governments of Japan and Switzerland, and the United Nations Volunteers for their financial contribution to these projects.



United Nations Development Programme

304 East 45th Street, FF-944
New York, NY 10017

www.undp.org

July 2012

All rights reserved. This publication or parts of it may not be reproduced, stored by means of any system or transmitted, in any form or by any medium, whether electronic, mechanical, photocopied, recorded or by any other type, without permission of the United Nations Development Programme.

This publication was printed on recycled paper.