COMMUNITY-BASED ADAPTATION TO CLIMATE CHANGE

COMMUNITY BASED ADAPTATION

The Community-Based Adaptation (CBA) programme seeks to encourage systemic change in national adaptation- related policy through evidence based results from a portfolio of community-driven climate change risk management projects. The programme promotes global learning related to community adaptation by sharing lessons from a range of initiatives focusing on natural resource management.

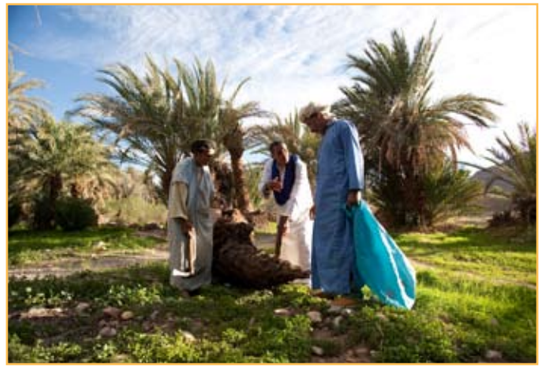
The programme is a collaboration led by the United Nations Development Programme (UNDP), with financing from the Global Environment Facility (GEF) . The GEF Small Grants Programme (SGP) is the delivery mechanism. The UN Volunteers has partnered with UNDP and GEF-SGP to enhance community mobilization, recognize volunteers' contribution, and ensure inclusive participation around the project, as well as to facilitate capacity building of partner NGOs and CBOs. In addition, funding is provided by the Governement of Japan, the Government of Switzerland, and AusAID.

Building Resilience to Climate Change

People in small communities are the most severely affected by climate change impacts, but are often the least equipped to cope and adapt. While the need for action is pressing, there are few practical examples of support for adaptation at the community level.

CBA Project Timeframe

- 2009 31 projects under implementation
- 2010 50-60 projects under implementation
- 2012 80-120 projects under implementation



The Community-Based Adaptation Programme

- USD $4.5 million, plus co-financing
- Up to $50k per project (+co-financing)
- A five-year programme, 2008 to 2012
- 8-12 projects per country
- Approximately 120 projects globally
- Ten pilot countries: Bangladesh, Bolivia, Guatemala, Jamaica, Kazakhstan, Morocco, Namibia, Niger, Samoa, Vietnam

Key partners: UNDP, The Global Environment Facility (GEF), GEF Small Grants Programme (SGP), The United Nations Volunteers, the Governement of Japan, the Government of Switzerland, and AusAID

The CBA programme addresses this gap by supporting community-driven projects that will pilot a range of climate risk management practices at the local level. The initiative seeks to support 8-12 projects in each of ten pilot countries, and a total of 80-120 projects globally by 2012.

Taking a natural resource management approach, the CBA programme focuses on adaptation approaches that also generate global environmental benefits in areas such as biodiversity conservation and sustainable land management. Projects will contribute towards country-driven priorities on natural resource management and climate change adaptation. The projects will in turn leverage systemic policy changes at a national level that are necessary to reduce vulnerability to climate change impacts.

The UNDP approach to adaptation is ultimately about doing development differently — integrating climate change risk management into MDG-focused initiatives. CBA projects add an adaptation layer to sound community-based development initiatives – ensuring that development gains are not threatened by climate change impacts. UNDP's CBA programme officially began implementation in February 2008. Country programme strategies have been developed in the ten pilot countries, and community outreach and project development-related activities are underway.

Status of Projects By Country

Bangladesh	Projects in planning
Bolivia	Projects under implementation
Guatemala	Projects in planning
Jamaica	Projects under implementation
Kazakhstan	Projects under implementation
Morocco	Projects in planning
Namibia	Projects under implementation
Niger	Projects under implementation
Samoa	Projects under implementation
Vietnam	Projects under implementation

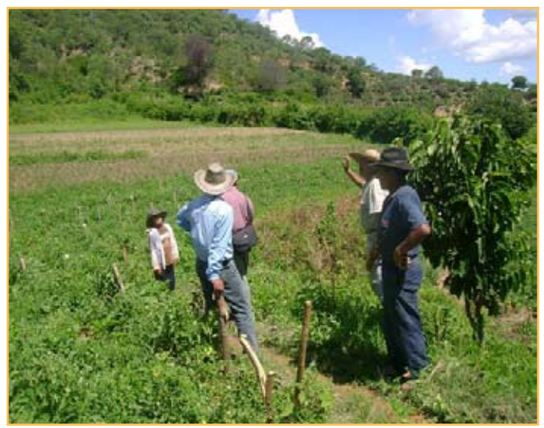
BOLIVIA

Agroforestry In The Saipina Municipality

Grant Amount: $31,500 USD

Background of the Project Area

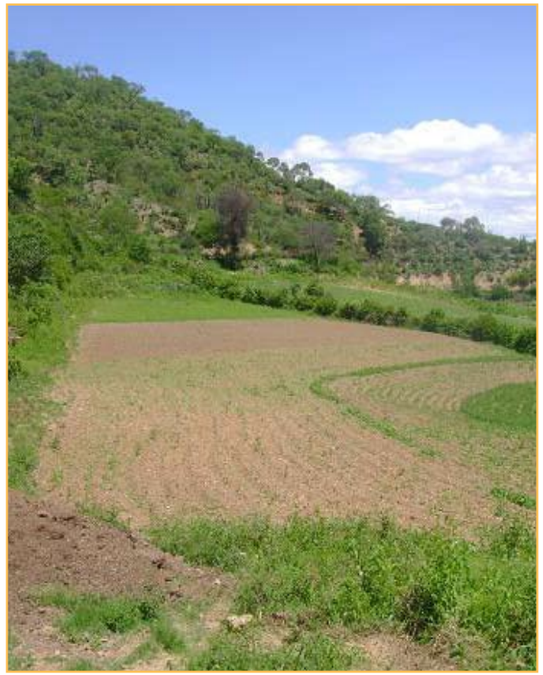
Saipina is located in Bolivia's "warm valleys", an area of transition between the western high plains and the eastern lowlands. The project area has one rainy season, which is also the main agricultural production season, and a dry season when cultivation is dependent on irrigation from a nearby river. The area's poor families rely on their crops for food and income, making them highly dependent on their environment, especially the local river. When rainfall levels are low, the river runs dry for several months. While there is some irrigation, the methods used are rudimentary and inefficient. Local forests are also threatened. Their overuse for animal forage and fuelwood exacerbates deforestation and is leading to a progressive loss of woodland vegetation and productive soils. The combined problems of water scarcity, resource degradation, and cyclical change in rainfall patterns (linked to El Niño and La Niña) jeopardize food security. To diversify livelihoods and increase incomes, the two project communities have recently increased cultivation of cherimoya, a native fruit crop.



Field diagnosis in Saipina Municipality for project "Adapting agroforestry in Saipina, Bolivia".

How Climate Change Impacts the Project Area

Climate change projections for Bolivia forecast higher temperatures, increasingly intense and erratic rainfall, and more marked seasonality. Severe glacial melting in the Andes is likely to increase the risks of both flooding and water shortages, as melting glaciers are less able to store water for steady release throughout the year. Increasing evaporation driven by rising temperatures, in combination with higher rainfall variability, is likely to significantly decrease water availability and bring drought. With these additional climate change pressures, farmers may be forced to cultivate new lands, creating a climate-driven cycle of land clearing and degradation that contributes to deforestation.



Improving cherimoya production through soil conservation techniques such as terracing and contour planting.

Efforts to improve incomes through the promotion of cherimoya cultivation are threatened by changing hydrology and decreased soil moisture, because the trees require a stable water supply. Land degradation and water scarcity may also increase the risk of competition over natural resources. The ecosystems upon which these poor, rural communities rely for agriculture, water, and income could be significantly impacted by adverse climate changes.

How CBA Project Supports the Local Communities

With the project support, community members are developing the capacity to reduce the vulnerability of agricultural production to climate change. Along with Fundacion Amigos de la Naturaleza, a local NGO, the CBA programme has helped the farmers of Saipina identify the climactic factors affecting agricultural conditions and recommended adaptation practices. Agroforestry techniques will be introduced to improve resource management and maximize scarce water resources. The project seeks to promote production of the popular cherimoya fruit crop as a sustainable income source. The following strategies will be employed to make cherimoya cultivation more resilient to climate change:

- Improving and expanding cherimoya growing areas with soil conservation techniques such as terracing and contour planting.

- Improving irrigation and water management efficiency to ensure the sustainability of cherimoya production despite predicted changes in water availability.

- Improving forest management to help reduce deforestation by planting local species that can serve as wind breaks and live fencing, while providing firewood and forage for cattle.

- Using community meetings, trainings, and exchanges of experiences to build community capacity to manage water and soil resources in a climate-resilient manner that will improve cherimoya agroforestry systems.

Project Partners

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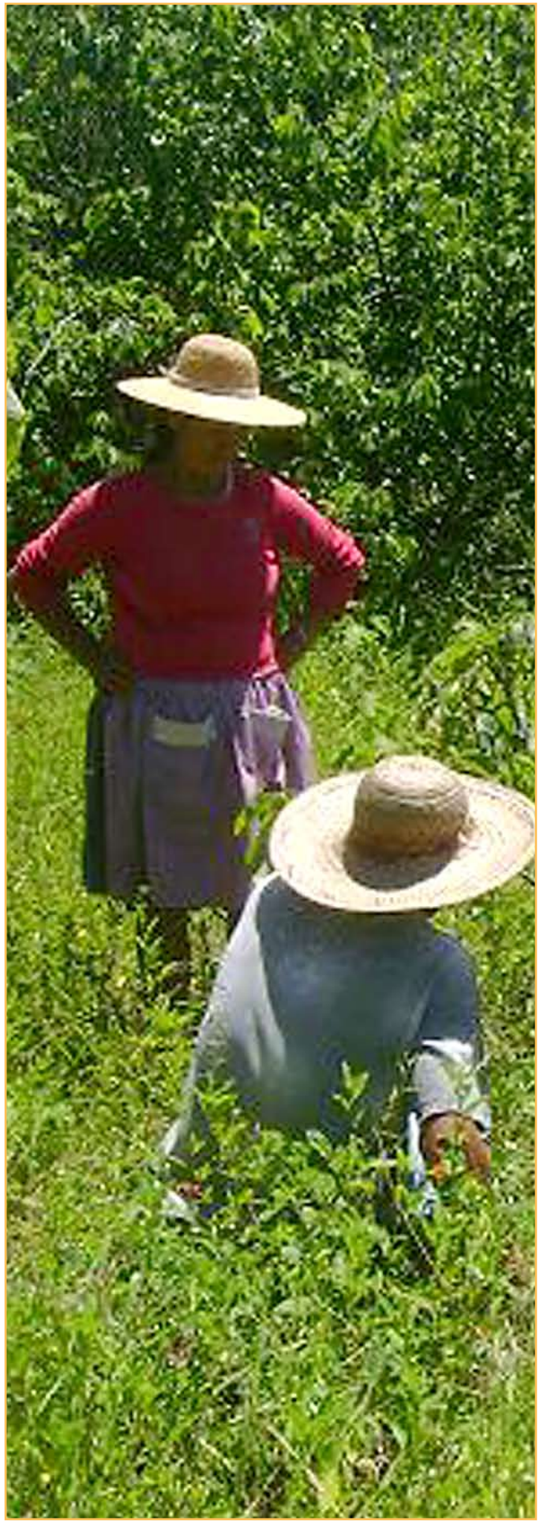
Collecting field samples during a field diagnosis in the Saipina Municipality in Bolivia.



BOLIVIA

Assisting Communities To Sustainably Manage Soil And Water Resources

Grant Amount: $34,875 USD

Background of the Project Area

Moro Moro is located in Bolivia's "warm valleys" – an area of transition between the western high plains and the eastern lowlands, where temperature is largely determined by altitude. The area is somewhat dry, with an average precipitation between 600 and 700 meters per year, and a distinct rainy and dry season. The municipality's approximately 3,600 residents depend primarily on agriculture and raising livestock for their livelihoods. Baseline environmental challenges include severe deforestation and soil degradation on the steeply-sloped pastures and farmlands. Soil degradation and deforestation threaten not only agricultural productivity and farmers' livelihoods, but also water quality and water availability for populations living downstream.

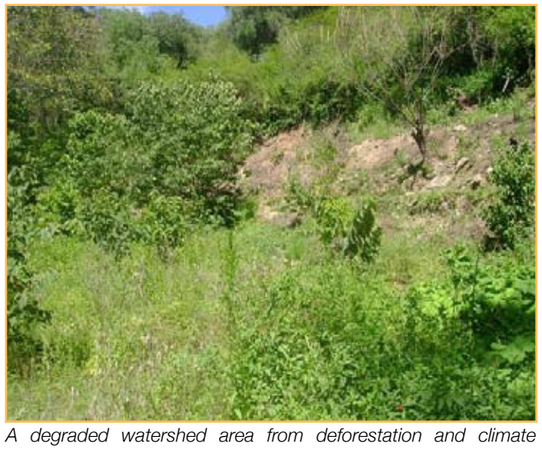
How Climate Change Impacts the Project Area

Climate change impacts are already being felt in this part of Bolivia and are expected to become more severe. Impacts include increasing temperatures, increasingly intense yet erratic rainfall, and more marked differences between the rainy and dry seasons. As a result, risks of floods and droughts are heightened. Climate change impacts will exacerbate existing land degradation pressures, threaten local livelihoods, and undermine existing efforts to improve water and soil management in the area. A local NGO, Fundación Natura, and its partners, IUCN and UNDP-Bolivia, have a water and soil management project that focuses on integrated water resource management through payments for environmental services. However, these measures are unlikely to be sustainable if climate change pressures are not simultaneously addressed.

How CBA Project Supports the Local Communities

To combat the climate-driven challenges, the communities manage key watersheds in the forests that act as a protective buffer against increasing climate-driven flood, erosion, and landslide threats. In addition, with the help of the CBA project and Fundacion Natura, the community developed and is managing nurseries to raise native species. Trees are planted in water catchment areas to protect the soil from threats such as stronger rainfalls. These community-managed activities promote increased agricultural production and water availability, and, therefore, improve the livelihoods of the local community members.

The CBA project also helps the community improve its knowledge of climate change and learn adaptive practices to help it cope with its impacts. Municipal residents, including children and youth, learn about climate change risks through two-day workshops. Participatory meetings are held to document historical and current climate variability and how it affects agricultural production. These records serve as baseline measurements, against which future environmental changes can be evaluated.



A degraded watershed area from deforestation and climate change driven factors such as floods and erosion, in the warm valleys of Moro Moro, Bolivia.

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A farmer inspecting young cherimoya fields in Moro Moro, Bolivia.

JAMAICA

Land Preservation Measures to Combat Climate Change in Jamaica's Cockpit Country

Grant Amount: $45,000 USD

Background of the Project Area

One of Jamaica's last remaining wildernesses, the Cockpit Country area is of significant global importance because of its unique topography and its large quantity of endemic species. The Martha Brae watershed encompasses several residential communities, including Bunkers Hill, which has about 2,000 residents. Residents are mostly farmers and, to maintain their livelihoods, the community utilizes the local ecosystem's services, especially rivers, which provide domestic and irrigation water. Residents of Bunkers Hill are affected by frequent flooding which causes erosion, destroys infrastructure, and damages local croplands.

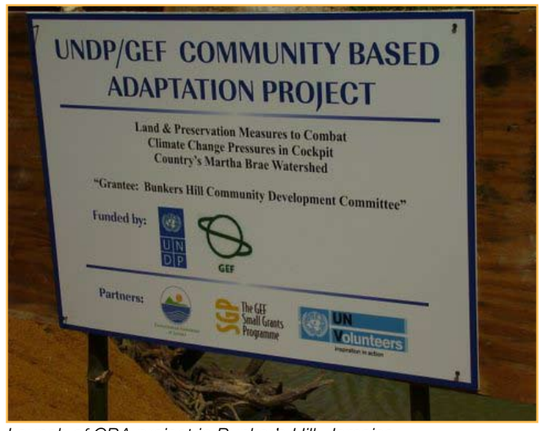
How Climate Change Impacts the Project Area

Climate change projections for Jamaica include an increased intensity of extreme storms and rainfall, as well as worsening levels of drought. In the Cockpit Country, increases in rainfall intensity will heighten the risk of flooding, especially during the rainy seasons. Existing flash flood patterns already pose a significant threat as river embankments erode and the stability of bridges is compromised. Exacerbation of flash flooding risks due to climate change would further threaten the viability of agriculture in the region by destroying crops, eroding lands, and spreading chemical contaminants.

An eroded riverbank in the Bunker's Hill community, Jamaica.

How CBA Project Supports the Local Communities

The CBA project is working through the local Bunkers Hill Community Development Council to stabilize and reinforce riverbank slopes to protect against the loss of agricultural lands. The project aims to fortify community resources, such as croplands and bridges, and make them increasingly resilient to flooding and erosion. Techniques include building culverts to divert floodwaters away from bridges and reinforcing erosion-prone areas by constructing "natural" stone barriers and planting indigenous species.



Launch of CBA project in Bunker's Hill, Jamaica.

Project Partners

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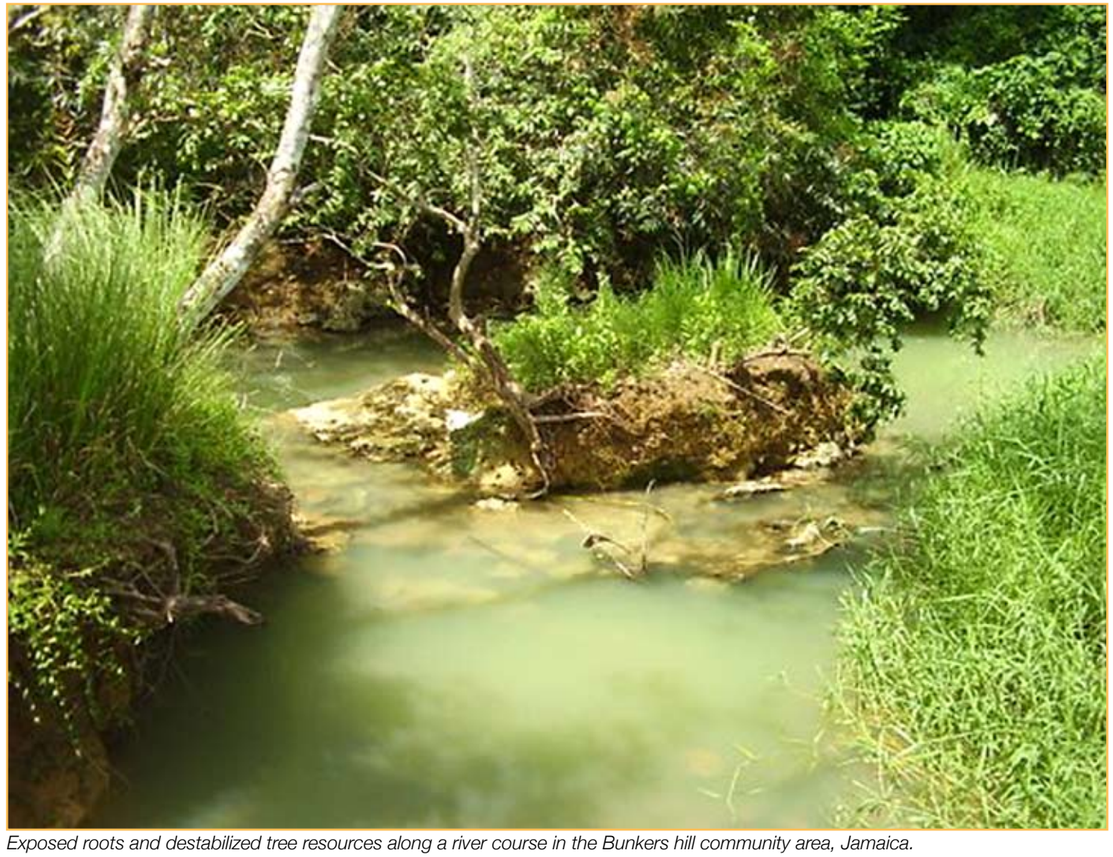

Exposed roots and destabilized tree resources along a river course in the Bunkers hill community area, Jamaica.

JAMAICA

Hillside Communities Adapt Agricultural Practices to Increase Incomes and Reduce Risk of Erosion and Landslides

Grant Amount: $48,750 USD

Background of the Project Area

The 2,600 residents of the Woodford and Cascade communities live near the Blue and John Crow Mountains National Park in Jamaica. These hillside inhabitants make a living by growing cash crops, primarily bananas and Blue Mountain coffee. Farming on steep slopes, residents often resort to unsustainable agricultural practices such as “slash and burn”. Deforested hills are particularly prone to erosion and landslides during intense rainfall events and hurricanes. The resulting soil degradation has devastating consequences for the productivity of community farms.

How Climate Change Impacts the Project Area

Climate change is expected to bring more severe weather, higher intensity rainfall, longer droughts, and warmer temperatures to Jamaica. These changes are likely to speed soil erosion, especially on steep slopes, leading to landslides, and putting agricultural livelihoods at risk. As temperatures increase, farmers may cultivate lands further upslope, seeking the cool conditions favorable to coffee and other crops. Even the nearby national park, an internationally-significant protected area, is at risk of encroachment.

How CBA Project Supports the Local Communities

With the project’s support, community members are developing the capacity to respond to the increased risks posed by climate change, and thereby secure their livelihoods. The project builds on the existing efforts of the implementing partner, the Jamaica Conservation and Development Trust (JCDT), to apply cost effective soil conservation techniques in steep slope environments and plant trees on degraded hillsides. Additionally, farmers are learning alternative livelihood practices, including greenhouse farming and high-value organic farming, which help increase incomes and reduce climate risks. Greenhouse farming has already been successfully employed by other projects in Jamaica. It is more intensive than regular farming, so it reduces the need for farmers to clear new land, which exacerbates erosion. Greenhouses also protect crops from pests and inclement weather, ensuring higher quality products that can be sold to local supermarkets for higher prices.

The Woodford community has brought together a diverse group of residents, including men, women, youth, and people with disabilities, to reduce its vulnerability to climate change. Every Tuesday, volunteers work together to construct their new greenhouse. Robert Hall, 26, is one of the community members who attended project workshops about climate change and forest restoration. “I feel compelled to teach others about alternative farming practices,” he says, “and help them to understand climate change and its effects on their crops.” Hall sees the impact of unsustainable practices on the local environment and volunteers to share his knowledge with his peers.

This project will also serve as an example for other area communities facing similar pressures. By reducing soil erosion and decreasing climate-driven pressures through reforestation and the adoption of new agricultural techniques, farmers will be less likely to encroach on protected areas upslope and will be better able to adapt to climate changes.

Community members at work for safer slopes on the Blue Mountains, Jamaica.

Project Partners

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Community at work for safer slopes on the Blue Mountains, Jamaica.

KAZAKHSTAN

Assisting Communities In Kazakhstan To Adapt To Climate Change By Improving Pasture Management

Grant Amount: $50,000 USD

Background of the Project Area

Pasture lands comprise 65% of Kazakhstan, making them valuable environmental and economic resources. These lands are the primary source of livestock fodder and their viability determines the efficiency of animal husbandry and, consequently, the welfare of rural populations. Most pastures are located in arid zones and are of low productivity. The communities participating in the project are located in the Sarkand District of southeastern Kazakhstan, a typical rural area which depends heavily on livestock and pastoral resources for its livelihoods. The only agriculturally useful precipitation is winter snow that contributes to soil moisture and groundwater as it melts. Summer precipitation generally evaporates before it can be absorbed by plants, thereby limiting agriculture.

How Climate Change Impacts the Project Area

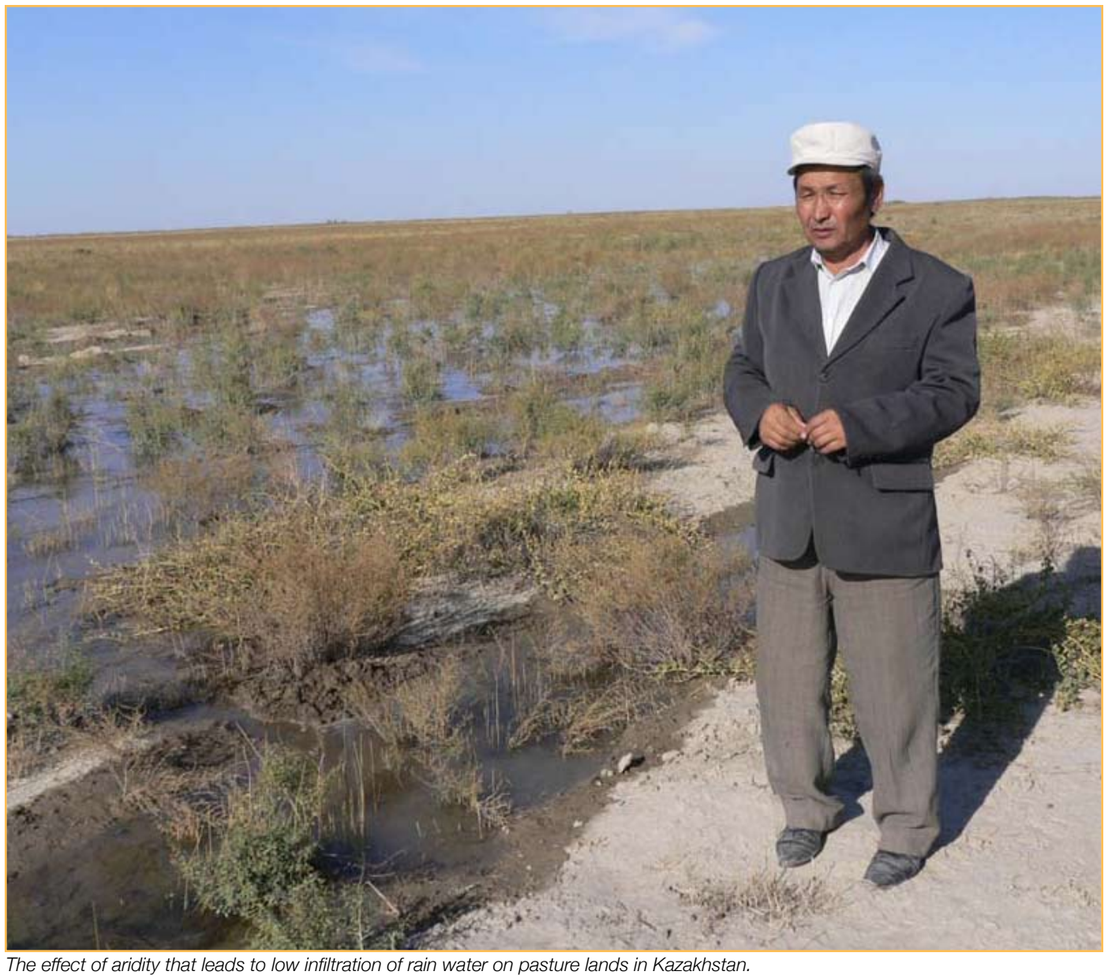
Like much of Kazakhstan, the project area faces increasing aridity due to climate change and man-made environmental pressures. The hardy sauxal tree plays an important role in fixing soil and maintaining the productivity of pastures. The challenge that many sauxal forests were cut down in the 1990s, disturbing the pastoral ecosystem and causing land degradation. Other pressures on pastoral lands include disruption of traditional pasture management practices, growth in private livestock herds, and the deterioration of a Soviet-era irrigation dyke. The decline in pastoral resources has reduced villagers' income from livestock-raising and forced many in this poor region into maladaptive coping strategies, such as poaching and illegal fishing. Climate change is expected to exacerbate existing pressures and make it increasingly difficult for residents to make a living from their livestock. Increased temperatures, especially in winter, and more evaporation in summer have already been observed in the project area and are expected to become more severe. These changes will increase overall aridity, threatening the productivity of pastoral lands by decreasing the availability of forage and water for irrigation.

Melted winter snow intrusion into the grazing fields in Kazakhstan.

How CBA Project Supports the Local Communities

The local community understands its vulnerability to climate change and recognizes the need for new adaptation methods. At CBA project preparation workshops, local people identified pasture degradation as a key problem and realized the necessity of replanting sauxal trees to rehabilitate pastures. The community decided to develop sustainable pasture management practices and improve growth in hay the fields through improved water retention techniques and fertilization.

Pasture improvement is a multi-year process, but the work started by this CBA project, with support from German Technical Cooperation, will put the community on the right path. Large areas of sauxal forests will be replanted, and community members are designing is new methods for herd management to decrease the load on pastures and prevent degradation. This and other methods will ensure sufficient fodder supply, improve livestock quality, and raise community incomes. Initial results are encouraging and can be replicated. Hay production has already increased due to measures put in place, allowing villagers to set aside more fodder for the coming winter and reducing the burden on pastures once the spring arrives.The CBA project partners with the Government of Switzerland to co-finance additional project activities to ensure that the project goal is fully accomplished. Additional funding for this project is used for the expansion of the fertilized inundable lands through purchase and application of additional 6,000 kilograms of nitrate on 20 hectares under the snow. The environmental issue addressed is the conservation and rehabilitation of ecosystems and pasture biodiversity, which are weakened by overgrazing especially during early spring season. In addition, this activity addresses a social and economic issue of improving the fodder stock for a cost-effective cattle breeding process. Increase in fodder stock will enhance the adaptative capacity of the community to climate aridity by raising cattle productivity and decreasing the level of cattle mortality. Thus, the livelihoods of the community and infrastructure will be improved.



The effect of aridity that leads to low infiltration of rain water on pasture lands in Kazakhstan.

Project Partners

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KAZAKHSTAN

UNDP Assists Pastoral Communities Facing Increased Aridity in Kazakhstan

Grant Amount: $50,000 USD

Background of the Project Area

The 3,100 inhabitants of Lepsy village reside in the northern desert of Kazakhstan. The climate is extremely dry, with long, cold winters and hot summers. Winter snow is the main source of agriculturally useful precipitation. Summer precipitation evaporates too quickly to be absorbed by plants, but melting snow seeps into the ground contributing to soil moisture and raising groundwater levels. This fragile ecosystem is threatened by climate change, specifically increasing aridity, as well as human pressures on the land - including overgrazing.

How Climate Change Impacts the Project Area

Long-term climate change projections for Kazakhstan forecast rising temperatures and declining average rainfall, which will lead to increased aridity in the already dry country. Drought is the main climate risk facing the village of Lepsy, where the harsh climate makes agriculture impossible. Decreasing soil moisture levels are already reducing fodder growth, lowering grazing capacity for local livestock, and contributing to pasture degradation. As a pastoral community, they rely on products generated from livestock, such as milk, meat and wool, as a source of income. The productivity of livestock is highly dependent upon the quality of forage available, as cattle, goats, horses and sheep require sufficient pasture. Undernourished animals sell at low prices and produce little milk. Aware of the links between climate, vegetation, and livestock, Lepsy residents are implementing adaptation measures to ensure that climate change doesn't further threaten their survival.

Creating sand protection belt around a village in Kazakhstan.

How CBA Project Supports the Local Communities

With UNDP support, local NGO Farmers Foundation of Kazakhstan worked with livestock owners and agricultural experts to design a community-driven project. Livestock specialists and veterinarians helped residents formulate strategies to improve the resiliency of their pastoral livelihoods and contribute to the conservation of the sand-pasture ecosystem. The community is benefitting from the implementation of sustainable pasture management practices that take changing climatic and ecological conditions into account and make the most of scarce water resources. To reduce the grazing load on parcels of land and enable more even livestock distribution, some herds are being transferred to unused rangelands in remote areas. A seasonal pasture rotation has also been arranged with livestock owners to ensure optimal loads on new pastures. Finally, water supply systems have been optimized by rehabilitating traditional wells.

From project design to implementation, community members are dedicating their time, labor, materials and knowledge on a voluntary basis to sustain and improve their livelihoods. The best practices identified to reduce the climate change impacts on the sandy rangelands will be documented and disseminated to help protect similar ecosystems in Kazakhstan, which total more than 31 million hectares.

The CBA programme partners with the Government of Switzerland co-finance additional activities in the area. Increased awareness of the Lepsy project has resulted in heightened interest from the residents of nearby villages. Many neighboring communities have become aware and are now willing to take appropriate measures to safeguard their livelihoods from the climate change impacts.

For example, people from Kokterek village, located 40 kilometers south from Lepsy village, appealed to the project to include their pastures into the project scope. This village has 290 households with a population of 1,180 people. There are 1600 heads of cattle and 3,200 heads of sheep and goats. The villagers of Kokterek approached the NGO Arai with the proposal to provide expertise, technical support, and relevant training to the community. A remote pasture management programme will be implemented to address the threat of land degradation. This will be the first time that the livestock analysis of the fodder based on the rotation and seasonal indicators will be conducted. The results of the project will provide data on how climate change will impact fodder quality in sustainably managed pastures.

Project Partners

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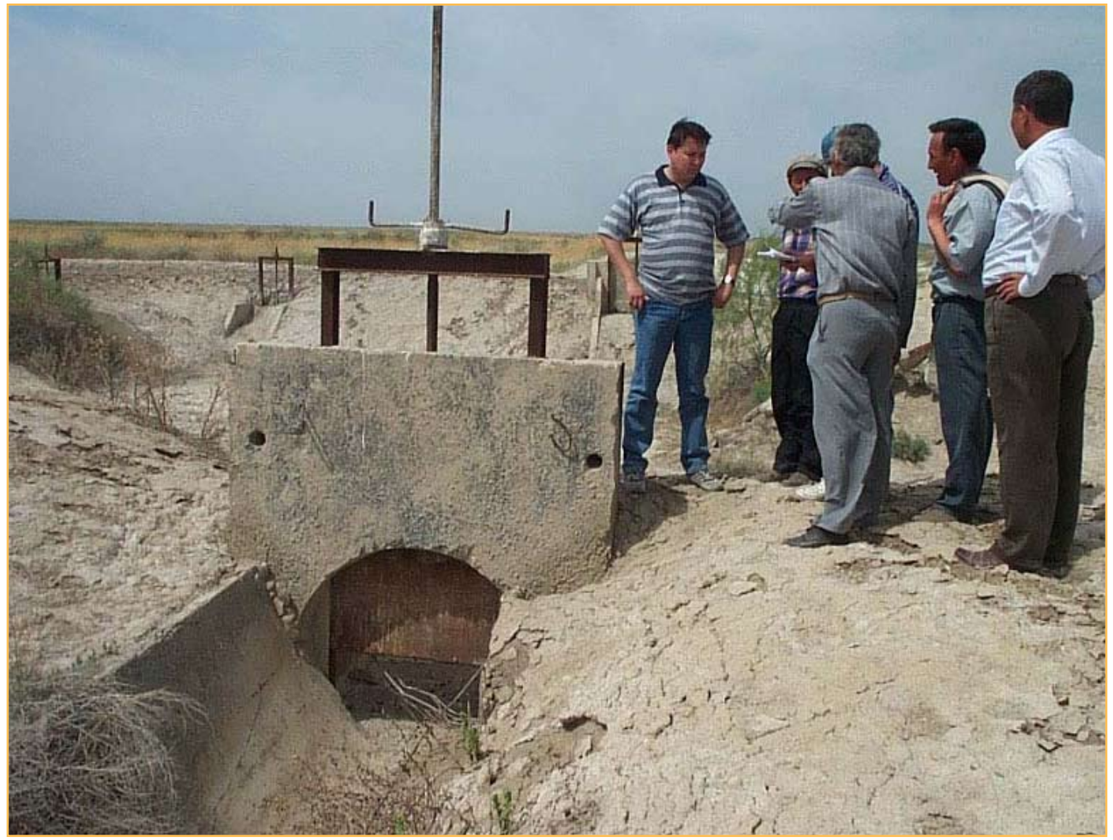

Inspecting a damaged irrigation systems in Kazakhstan

NAMIBIA

Reducing Climate Change Impact In The Osumati Region

Grant Amount: $48,000 USD

Background of the Project Area

Although Namibia is the driest country in sub-Saharan Africa, its industries, namely agriculture, fishing and nature-based tourism, are dependent on natural resources. Namibia is likely to be increasingly impacted by climate change, which is predicted to alter rainfall patterns. More erratic precipitation patterns and an overall precipitation decline of 10-20%, as well as a temperature increase of 2-4°C, are expected by 2050. These changes will contribute to increasing aridity and water scarcity.

The project site is located in the Omusati region of Namibia, an arid plateau in the country's north that is particularly at risk to Namibia's dry climate. Seventy percent of residents are subsistence farmers that depend on rain-fed agriculture and non-commercial animal husbandry for their livelihoods. Therefore, the local communities' livelihoods are threatened by climate change.

How Climate Change Impacts the Project Area-

With its extremely dry climate and the forecasted temperature increases in Namibia, climate change will likely aggravate soil degradation and threaten local livelihoods in the Omusati region by reducing crop, meat and milk production. In a region already severely affected by HIV/AIDS, climate change will also increase the prevalence of cholera and other water related illnesses. Climate change impacts will exacerbate current environmental challenges, such as over-use of pasturelands and native plants. Unsustainable practices in Omusati are degrading land resources, reducing soil permeability, decreasing water availability, and fueling a cycle of poverty and environmental degradation. These challenges put more pressure on already vulnerable communities.

How CBA Project Supports the Local Communities

The CBA programme is assisting four villages, totaling over 4,000 people in implementing climate change adaptation measures through technical assistance and capacity building. The project is funded by a GEF $46,000 grant and supplemented by funds from the Government of Japan and local in-kind contributions. Prepared through a participatory process, the project seeks to increase the adaptive capacity of communities that are facing climate change risks, such as drought and land degradation, while improving local livelihoods.

A local non-governmental urganization, Omalundu Iimuna Kommitiye Elungameno , is coordinating implementation with the communities and introducing resilient natural resource management practices and farming methods. An awareness-raising and capacity-building process has been launched, during which local farmers learn about soil conservation techniques and adaptive water management practices. The farmers select and plant drought resistant species, which increase forest cover, improve soil permeability, decrease evaporation, and reduce land degradation pressures. These species, especially fruit trees, will provide the additional benefit of becoming alternative sources of income. The project will also increase awareness about climate change risks and provide practical tools for adaptation. Water conservation and usage will be improved through implementation of small-scale rainwater harvesting and storage methods. Four local schools have already been equipped with water tanks and will be trained in rainwater harvesting, thereby raising awareness among younger generations.

Project Partners

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Livestock water ponds constructed for collecting surface run-off and stored for livestock water source during the dry season.

NIGER

Adapting To Climate Change With Resilient Agricultural Techniques

Grant Amount: $48,000 USD

Background of the Project Area

Located in the Sahara desert of the Dakoro Department in Niger, the villages of Maïkoulaké, Atoulé and Roumbou are in a fragile ecological zone. The majority of Niger's water resources are concentrated in a small green belt in the south. The Tarka Valley, in south central Niger, is one of the nation's few remaining fertile areas. Although they are near the Tarka Valley, the villages, which are home to 1,600 people, are at risk of desertification as the semi-arid Sahel zone expands. The population of these three agropastoral communities depends largely on natural resources for their livelihoods. This makes them highly vulnerable to natural and economic shocks, as well as climate change. As a result of persistent poverty, many residents resort to selling firewood for revenue, an activity that exacerbates deforestation and soil degradation.

How Climate Change Impacts the Project Area

Climate change experts predict Niger to experience increasingly variable rainfall patterns and higher temperatures over the coming decades. Frequent droughts are already a problem, as rainfall levels have steadily declined since the late 1960's, resulting in an expanded dry season that now lasts for nine months. Recently, permanent and semi-permanent ponds have dried up and the water table has decreased. The degradation of the Tarka Valley ecosystem has forced some residents into unsustainable and destructive practices, such as cutting firewood for sale, which exacerbate problems. More frequent droughts and increased water scarcity, expected with climate change, combined with unsustainable resource management practices, will accelerate deforestation and desertification, and threaten the livelihoods of those who depend on the land.

How CBA Project Supports the Local Communities

With the project support, community members are developing livelihood practices that will be resilient in the face of climate change. Along with the SGP National Coordinator and a national UNV volunteer, the project activities are facilitated by a local non-governmental organization, Contribution à l'Education de Base, which has experience in both climate change risk reduction and poverty alleviation. The group specializes in community-based development and uses techniques that foster grassroots ownership and local decision-making. The project seeks to bolster the adaptive capacity of local communities through the following activities:

- Promotion of sustainable farming techniques that enhance yields while helping regenerate soil.

- Demonstration of quick-maturing varieties of local staple crops and testing of crops in experimental plots to help farmers reduce their vulnerability to droughts.

- Training of farmers in resilient techniques that improve soil fertilization, dune fixation, and natural regeneration. These farmers are encouraged to further disseminate adaptive techniques by training their peers.

- Creation of a community-managed bank of agricultural inputs, so that fertilizers are easily accessible, and farmer can increase yields.

- Provision of animal-drawn plows and fertilizer to the poorest households so that they are able to farm more productively, decreasing their need to depend on unsustainable practices, such as cutting firewood and farming marginal land, which aggravate deforestation and land degradation.

Project Partners

The CBA programme is a collaboration led by United Nations Development Programme (UNDP), with financing from the Global Environmental Facility (GEF). The GEF Small Grants Programme (SGP) is the delivery mechanism. The UN Volunteers partners with UNDP and GEF-SGP to enhance community mobilization, recognize volunteers' contribution, and ensure inclusive participation around the project. A national UNV volunteer is dedicated to the CBA programme in Niger in this respect. In addition, The Governement of Japan co-finances this project.

A community meeting at the Maikoulake Village, Niger.

NIGER

Agropastoral Adaptation in Rombou Commune

Grant Amount: $31,125 USD (GEF SPA)

Background of the Project Area

As an arid and landlocked country, the West African nation of Niger is highly vulnerable to climate change. The Sahara desert and the semi-arid Sahel zone constitute approximately 80% of the country's land. The majority of Niger's water resources are concentrated in a small green belt in the south. The Tarka Valley, in south central Niger, is one of the nation's few remaining fertile areas. Although it borders the Tarka Valley, the village of Roumbou is at risk of desertification as the semi-arid Sahel zone expands. The project area is in the Maradi Region, which has a strong tradition of pastoralism, dating back to its original inhabitants, the nomadic Touareg and Peulh tribes. Farmers from the Haoussa tribe also moved into the area during the 1960s in search of fertile land. Both pastoralists and farmers now depend on increasingly scarce natural resources for their livelihoods. Plagued by high levels of poverty and structural food insecurity, the area suffers from unsustainable agropastoral practices and increasing risks of conflicts over natural resources. Working with three communities consisting of a total population of 6,000 people, the CBA project will involve 2,000 participants in activities that promote more sustainable agricultural and pastoral practices and will help the population deal with predicted climate changes.

How Climate Change Impacts the Project Area

Climate change experts predict Niger to experience increasingly variable rainfall patterns and higher temperatures over the coming decades. Frequent droughts are already a problem, as rainfall levels have steadily declined since the late 1960s - resulting in an expanded dry season that now lasts for nine months. Recently, permanent and semi-permanent ponds have dried up and the water table has decreased. The degradation of the Tarka Valley ecosystem has forced some residents into unsustainable and destructive practices, such as cutting firewood for sale, which exacerbates problems further. More frequent droughts and increased water scarcity, as expected with climate change, combined with unsustainable resource management practices, will accelerate deforestation and desertification, and threaten the livelihoods of those who depend on the land.

How CBA Project Supports the Local Communities

The CBA project aims to foster sustainable agricultural and pastoral practices and water managment that will help local resident's better deal with current and future environmental challenges. The project was prepared through a lengthy participatory process and is being implemented by a local non-governmental organization called AGIR, which specializes in sustainable resource management. The project's activities are designed to increase the capacity of communities to adapt to climate change through a variety of strategies:

- Introduction of alternative crop production methods to maximize yields.

- Distribution of quick-maturing seed varieties to help farmers reduce their vulnerability to droughts.

- Training of farmers in improved soil fertilization and regeneration techniques. The farmers trained will share these techniques with their peers.

- Planting of tree and hedgerows that will protect against soil erosion caused by increasingly strong winds and rainstorms and increase the fertility of degraded soils.

- Rehabilitating traditional wells using cement instead of wood, which must be replaced frequently, contributing to deforestation.

- Creation of a community-managed grain bank where residents have access to additional stores of staple crops, reducing food insecurity.

- A training and capacity building program that helps ensure ownership of the new adaptive techniques by local farmers, pastoralists, and community leaders.

To instill ownership of the project in communities, activities will be integrated into local-level resource management planning. The goal of the project is to help enable local residents to make the Tarka Valley ecosystem more resilient to climate change and improve food security and livelihood conditions.

A traditional well in Niger.

Project Partners

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SAMOA

Helping Communities Adapt To Rising Seas And Flooding In Samoa

Grant Amount: $30,000 USD

Background of the Project Area

Satoalepai is an isolated village located on Savaii's, one of the two main Samoan islands. Its 400 residents depend largely on agriculture and fishing for their incomes and livelihoods. The village is found between the ocean and large inland wetlands, which consist of coastal swamps and mangrove forests. These wetlands are essential to local livelihoods, such as subsistence farming and fishing. In recent years, devastating climatic events have made it increasingly difficult for the Satoalepai community to practice their traditional economic activities. In addition, the area is at risk of becoming unsafe for permanent habitation.

How Climate Change Impacts the Project Area

Climate change projections for Samoa forecast rising sea levels and escalating extreme events, which take the form of violent cyclones, damaging rainfall, and uncontrollable flooding. Local biodiversity and livelihoods are threatened by coastal erosion and the salinisation of soil and fresh water. Due to its location between the coast and wetlands, Satoalepai is particularly vulnerable. Irregular flows of water and flooding between the wetlands and the sea increase the build up of silt and disrupt fish nurseries. Inland migration has increased as local residents seek safety and better agricultural soils. Main route through the wetlands floods leaving those near the coast at risk during cyclones.

How CBA Project Supports the Local Communities

In response to these challenges, the local community has formulated an adaptation initiative to reduce its vulnerability by reinforcing the resilience of the local ecosystem. With coordination by the village council and support from UNDP and AusAID, residents have prepared and begun to implement the CBA project. As part of the venture, the main village access road to the coast will be upgraded to help protect the community from increasingly destructive floods. Box culverts will be installed to help water flow more freely during storm surges and heavy rain. The fragile wetlands around the community will also be rehabilitated and replanted in order to become more resilient. Enhancement of water flow within the wetlands will help protect homes and farms from flooding and allow fish breeding habitats to connect with the sea.

Both men and women in the community are dedicating their time, knowledge and energy to the project as volunteers. Samu Samu, 29, a fisherman who has lived in Satoalepai his entire life, is one of the participants. To feed his wife and two children, he nets tilapia and traps crabs in the wetlands. Samu says he has noticed that wetland waters are rising and that sometimes after heavy rains the village road floods blocking access to inland fields. Like Samu, the residents of Satoalepai want to protect their ecosystem in order to ensure livelihoods for their children. The success of the project in Satoalepai will provide practical examples of adaptation techniques to nearby communities facing similar climate change pressures. In a country as small as Samoa, lessons can be shared easily with local policymakers and used to inform nationwide adaptation policy and planning.

Project Partners

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Erosion driven by climate change in Satoalepai is threatening the livelihoods of the community members who are heavily dependent on agriculture and fishing as a source of income.

Box culverts help water flow more easily during severe flooding.

SAMOA

Community-Based Adaptation for Lelepa Village

Grant Amount: $25,000 USD

Background of the Project Area

Most of Samoa's people live within one kilometre of the coast and face significant climate change threats from stronger cyclones, storm surges and sea level rise. In addition, natural coastal defences such as wetlands, mangroves and coral reefs are under stress from a combination of human and environmental pressures – beach erosion, deforestation of mangroves, and coral bleaching.

How Climate Change Impacts the Project Area

The Lelepa community and the ecosystems upon which it relies are vulnerable to climate change threats such as increased flooding and the salinisation of local wetlands. A single road provides the only evacuation route to residents during extreme events, such as cyclones and floods. When the route is impassable communities are prevented from reaching inland destinations safely. The road also blocks the natural flow of water around the village, increasing the concentrations of sea water in the local wetland.

How CBA Project Supports the Local Communities

In response to these challenges, the CBA project is upgrading this road by raising it and installing culverts where it crosses the wetland, creating a more secure evacuation route and permitting the free flow of water. Additionally, replanting native plant species along the low-lying borders of the community's farm and residential lands will reduce vulnerability to the stronger floods expected in the future and protect wetland biodiversity from salinisation. The community is also helping to restore coastal defences through coastal vegetation rehabilitation that will create buffer zones against storm surges and reduce siltation of coral reefs.

Project Partners

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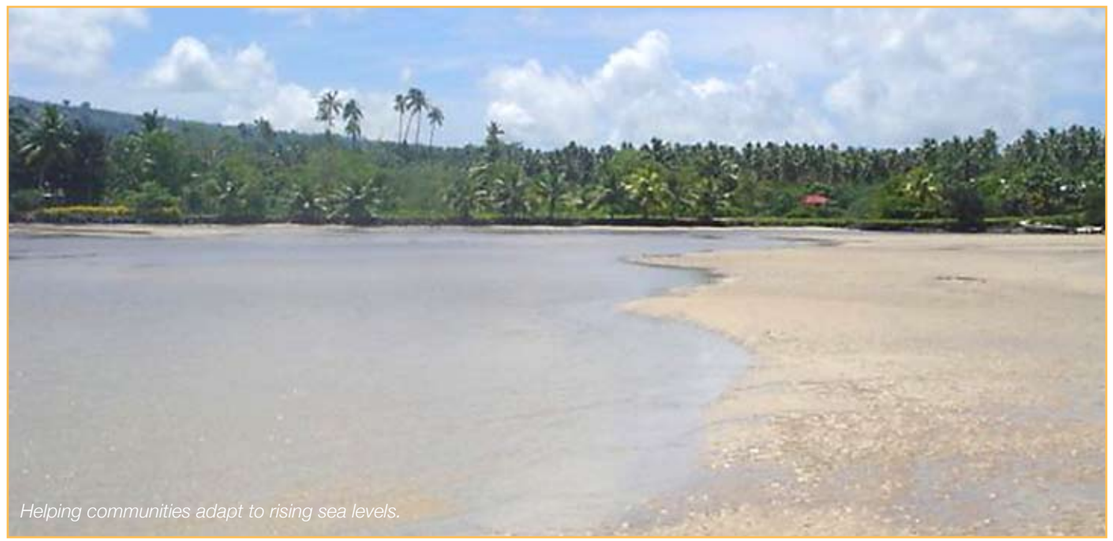
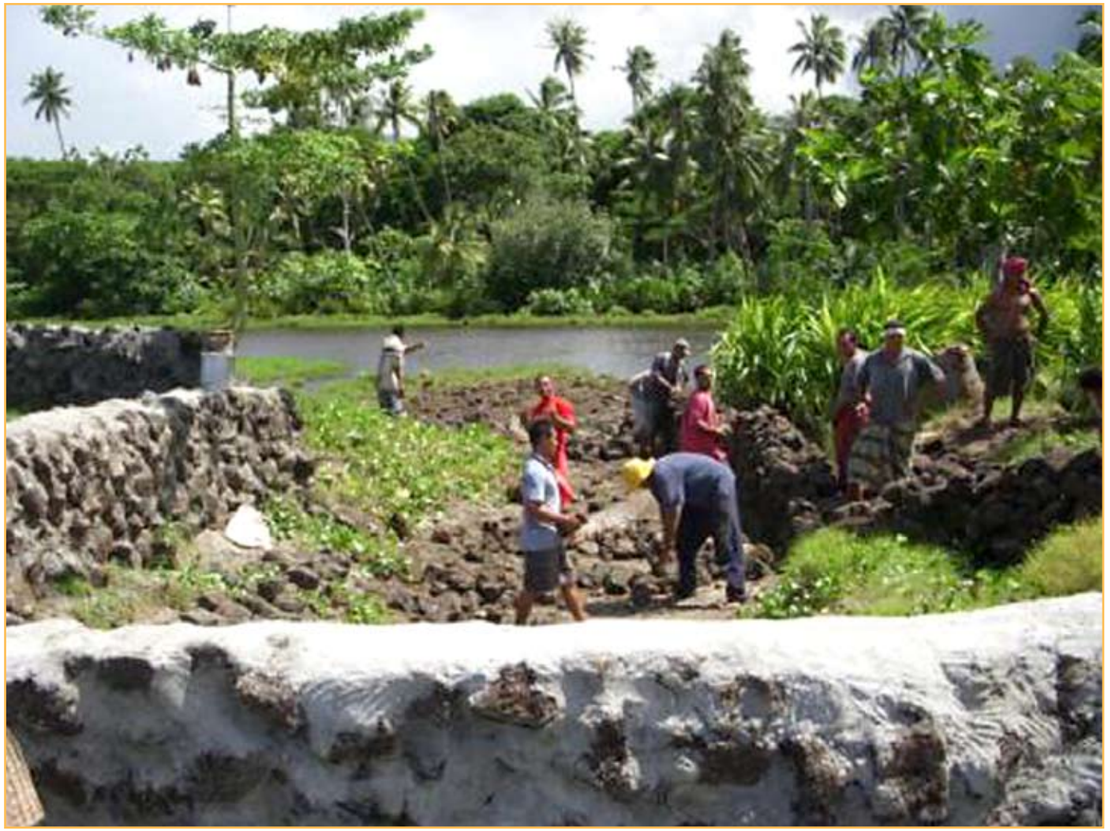


Helping communities adapt to rising sea levels.



Reinforced protection for flood management in the Cam Tam Commune, Than hoa to reduce the impacts of flashfloods.

VIETNAM

Developing A Model For Applying Technologies to Reduce Vulnerabilities and to Increase Adaptive Capacity

Grant Amount: $50,000 USD (GEF SPA)

Background of the Project Area

Located in the North Central Coast of Vietnam, the Cam Tam Commune is a poor and community of the midland mountainous area of Thanh Hoa Province. Cam Tam Commune is classical example of Thanh Hoa in terms of topography, soil conditions, social custom, culture and agricultural practices.

How Climate Change Impacts the Project Area

Due to climate change impacts, the Cam Tam commune has suffered increased droughts and water shortages. With erratic patterns of tropical storms coming at irregular intervals due to global warming, seawater with high levels of salinity entered inland and has mixed with freshwater. This salinisation has caused water shortages in the commune.

How CBA Project Supports the Local Communities

This project is formulated from the needs assessment outcome of the local community and is in line with the socio-economic objectives and programmes of Cam Tam Commune. It also fulfills the requirements of Cam Thuy District People's Committees plans. The specific objectives of the project are twofold. First, promoting awareness and understanding among local communities and governmental authorities about the impacts of climate change on sustainable development. Secondly, to build a model for applying scientific and tested technologies that reduce the impacts of droughts and flash floods through reinforced protection and the sustainable use water, land and agricultural resources. To achieve these objectives, the project will develop and implement an awareness-raising programme on the threats of climate change through community-level communication activities. It will also design and test flash flood reduction models for the region and implement a rotating farming system using suitable drought-tolerant crop varieties. To address the shortage of water supplies for domestic and production purposes, the project will establish household rainwater-harvesting techniques. Additionally, progress will be monitored and best practices documented.

Expected project activities include:

- Enhancing the awareness and understanding of partners and local authorities of the impacts of climate change.
- Demonstrating sustainable use of water resources for domestic consumption and agricultural use.
- Establishing 30 household waterharvesting tanks for harvesting and storage of surface and ground water.
- Developing a crop rotation programme for drought-resistant varieties to increase productivity, conserve land resources, and protect biodiversity. At least two endemic mountainous rice varieties will be restored and flash-reduction methodologies tested. Results will be disseminated to many participants through training courses and workshops.

Project Partners

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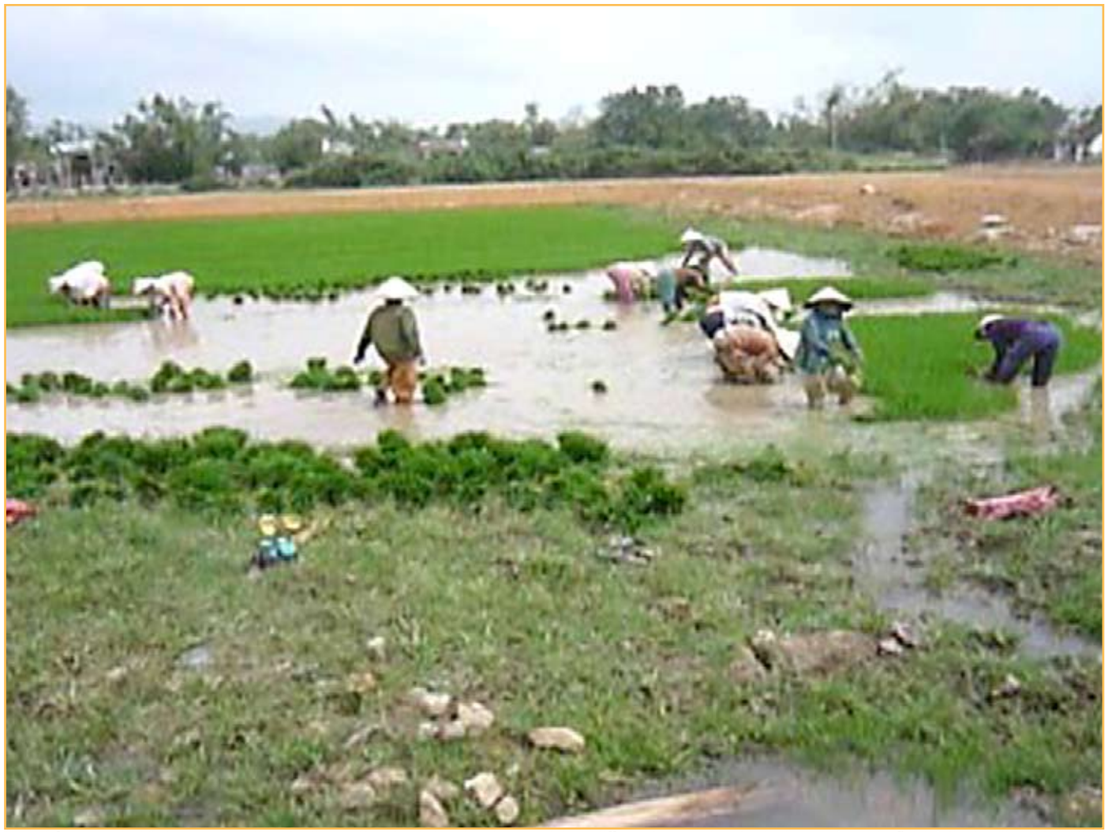
Vulnerability reduction assessment meeting in Vietnam.



Local farmers in Vietnam adapting to the saltwater intrusion by applying different cropping techniques (paddy fields) that will sustain the saltwater that has moved inland.

VIETNAM

Contributing To Climate Change Adaptation Through Conservation And Development

Grant Amount: $50,000 USD (GEF SPA)

Background of the Project Area

The project area is located in three villages in the Phuoc Long Commune of Bac Lieu Province, Vietnam. The Bac Lieu Province is one of many provinces in the Mekong Delta which has two coastal sides with the total length of over 700 kilometers. The area is characterized by even, flat, and low lands which are strongly affected by daily tides causing saline water to enter into upstream river basins. Saltwater intrusion areas cover over 50% of the Mekong Delta, which has become an unstable and unfavorable situation for the local village members. The saltwater intrusion impedes rice production that residents rely heavily upon for their incomes. It also has led to freshwater deficiency.

How Climate Change Impacts the Project Area

As weather patterns vary due to climate change, causing erratic and high intensity storms at inconsistent intervals, seawater is pushed further inland. The forecasted salt surge will threaten natural organisms and key freshwater resources as it increases the salinity levels of coastal soil and water. This threatens the rice production of fields in the Phuoc Long villages. In addition, droughts and water shortages have been experienced in the villages due to increases in salinity exacerbated by climate change.

How CBA Project Supports the Local Communities

The CBA programme aims at contributing to minimizing vulnerability and strengthening local adaptive capacity in order to reduce the impacts of droughts and salt water intrusion in rice production fields. The project has two specific objectives: First, to enhance the awareness and understanding of local authorities and residents on the impacts of climate change on socio-economic development. Second, to build a model for applying technological advances in conservation and the sustainable use of local rice varieties that are tolerant to droughts and salinity. These objectives support the strategic goals of the People's Committee of Phuoc Long District to restructure agricultural production to ensure socio-economic development. The project will be undertaken in three villages with a focus on awareness creation and formulating a model that supports replication of the practices and lessons.

Main Activities that Will be Carried Out Include

• Organizing awareness raising activities to enhance understanding and knowledge of climate change, its impacts and community-based adaptation measures.

• Establishing a drought and salinity tolerant rice.

• Establishing at least three groups of farmers who can supply the commune and other neighboring ones with drought and salinity tolerant rice seeds.

• Organizing ten technical training workshops and one study tour for the participating farmers in the project.

The ultimate result of the project is to enhance the capacity of rice farmers to cope better with droughts and salt water intrusion which are caused mainly by climate change. Further, incomes of rice farmers will be secured and increased by an average of about 10-12%. The drought and salinity tolerant rice varieties that are successful will be promoted for wider application, not only in the commune, but beyond through sharing technical reports and the provision of seeds.

Community members meeting on how to protect rice fields from salt intrusion and droughts in Bac Lieu, Vietnam.

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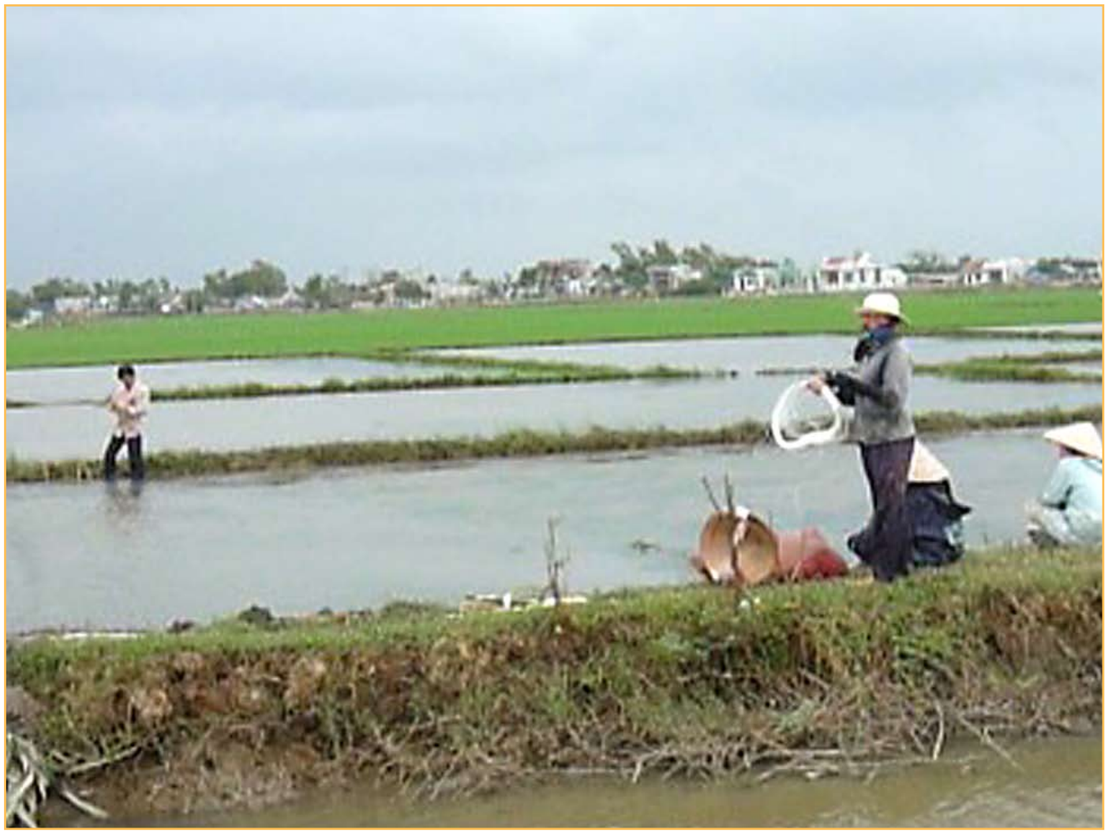

Growing drought and salinity tolerant rice varieties in the Bac lieu Province, Mekong delta, Vietnam.

Contacts

Pradeep Kurukulasuriya
UNDP Bureau of Development Policy - Environment & Energy Group
pradeep.kurukulasuriya@undp.org

Delfin Ganapin
GEF Small Grants Programme
delfin.ganapin@undp.org

Charles Nyandiga
UNDP GEF Community-Based Adaptation Project
charles.nyandiga@undp.org

Additional information and details can be found from the project website at
www.undp-adaptation.org/project/cba

Cover Photos (Clockwise): *(1) Creating sand protection belt around a village in Kazakhstan. (2) Women working together: Women are highly vulnerable to climate change impacts, and are least equipped to adapt, even though their role in maintaining the ecosystem is crucial. CBA mainstreams gender in adaptation projects, at all levels. (3) Agroforestry techniques are introduced to improve cherimoya cultivation. The Cherimoya fruit crop ia a sustainable source of income for the communities in Pie de la Cuesta, Bolivia. (4) Vulnerability Reduction Assessment meeting in Vietnam.*

Inside Cover Photo: *(1) Farmers in Iguiwaz, Morocco: CBA supports farming communities and helps them experiment with more resilient farming techniques, using less water and preserving soil fertility. The techniques and species tested and found successful in the field will be promoted for dissemination and replication. (2) Youth community volunteers fixing underground well. Mobilization of community volunteers is essential for CBA project implementation and sustainability. In- kind community contributions is an important feature of CBA budget, at local and global levels. Source: Baptiste de Ville d'Avray, highlighted in the Participatory Video on the Iguiwaz community's volunteer contribution to adaptation in Morocco.*

United Nations Development Programme
Energy and Environment Group
304 East 45th St, 9th Fl
New York, NY 10017

www.undp-adaptation.org/project/cba