



## ADAPTATION FUND

### NATURE-BASED SOLUTIONS FOR CLIMATE CHANGE ADAPTATION

The Adaptation Fund was established in 2001 to finance concrete adaptation projects and programmes in developing country Parties to the Kyoto Protocol (Decision 10/CP.7) and has been operational since 2008. Since 1 January 2019, the Adaptation Fund has served the Paris Agreement with respect to all matters relating it (Decision 13/CMA.1). Adaptation Fund's purpose is clearly aligned with the Paris Agreement's stated goal of "enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change" (Article 7, paragraph 1).

The Adaptation Fund finances projects that help vulnerable communities in developing countries adapt and build resilience to the effects of climate change while providing an innovative direct access modality that allows accredited national institutions in developing countries to access financing and manage projects directly. The Fund has - since its inception - contributed action, innovative approaches to climate finance (e.g. Direct Access, Enhanced Direct Access) as well as learning to benefit the most vulnerable countries and communities.

As of July 2020, the Fund has a portfolio of 105 approved concrete projects and programmes for a total financing of US\$ 730 million in diverse sectors such as **agriculture, coastal zone management, disaster risk reduction, ecosystem-based adaptation, food security, forests, multisector projects, rural development, urban development and water management.**

Numerous Adaptation Fund projects use ecosystem-based adaptation approaches that fall under the umbrella of Nature-based solutions to tackle climate change, benefit vulnerable communities and improve livelihoods by protecting, restoring and sustainably managing ecosystem services and that complement other measures, such as infrastructure-based solutions. Projects funded under the Adaptation Fund portfolio include, among others, activities focused on **reforestation, forest protection, sustainable forest management, avoided fuel harvest, improved plantation, conservation agriculture, cropland management, agroforestry, avoided grassland conversion, rangeland management, improved livestock management practices, rehabilitation/ restoration of coastal wetlands, sustainable groundwater management, aquifer recharge measures** etc.

The Fund's supported projects are furthermore contributing to enabling institutional and governance environment, generating coordinated and informed actors with the capacity to address appropriate adaptation measures in the medium and long term, thus resulting in a genuine local resilience to climate change.

A synopsis of selected project and programmes, specifically incorporating nature-based approaches are presented in **Annex 1**<sup>1</sup> to this document. The sections below present six case studies from the Fund's portfolio that are helping vulnerable communities by supporting sustainable agriculture, improving water

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<sup>1</sup> This is not an exhaustive list of projects and programmes supporting ecosystem based adaptation approaches but simply those that have a greater share of EbA interventions.

security and soil quality and investing in green infrastructure for protection against sea-level rise, storm surges, floods and disasters.

### Case Study 1

**Mongolia**, *Ecosystem Based Adaptation Approach to Maintaining Water Security in Critical Water Catchments in Mongolia*, implemented by United Nations Development Programme (UNDP)  
Funding amount: US\$ 5.50 Million; Duration: 6 years

In Mongolia the AF supported Ecosystem Based Adaptation (EbA) project is helping herding communities use their water resources sustainably. The project is targeting two eco-regions, the Altai Mountain/Great Lakes Basin and the Eastern Steppe, **to find better approaches for grazing management, restoration of riparian zones and efficiency of water use. It aims to make water resources and pastures more resilient to climate change.**

The project introduced a number of climate change adaptation technologies to save water and protect soil to the local communities such as: greenhouse farming, drip irrigation systems, organic farming, and reducing soil erosion through agroforestry.

The project has a merit in **enhancing ecosystem resilience through applying the landscape approach** by balancing pasture-water-livestock ratios. The project is enhancing the skills of local communities to adapt to climate change on economic and ecological levels through various trainings. The project is reducing the sensitivity to climate change through the introduction of “physical capital” in form of various structures for spring protection and the establishment of water basins etc. Additionally, the project is **enhancing the ecological resilience of rangelands** through the enlargement of protected areas and improving pasture productivity. The project is thus reducing the exposure of communities to negative climate change impacts (water scarcity and declining feed resources) by enabling herders to move to more productive pastures by rehabilitating water resources there, thus improving the water-pasture-livestock balances.

The project strategy includes the full interconnecting all landscape elements. **The rehabilitations of springs in sub catchments** which connected to the larger river catchment, enhance total base-flows. Protected areas exist as mosaics between wetlands and rangelands. The management of wetlands is fully intertwined with pasture management leading to a balanced and fully optimized use of resources. Socio-economically, this is interconnected with measures for improved income generation. Further synergies of water and pasture management are created by the additional component of energy management i.e. briquetting, which saves manure and wood used for fuel, thereby enhancing land productivity and water flows by retaining more nutrients in the soil and water flow in rangelands.

### Case Study 2

**Cambodia**, *Enhancing Climate Resilience of Rural Communities Living in Protected Areas of Cambodia*, implemented by the United Nations Environment Programme (UNEP)  
Funding amount: US\$ 4.95 Million; Duration: 5 years

The project is targeting vulnerable communities in protected areas (PAs) to adapt to climate change via Ecosystem-based Adaptation (EbA) and eco-agricultural interventions to ensure sustainable livelihoods and motivate the local communities to get involved in sustainable management of natural resources.

The project focuses on **protecting broad scale “Eco-agriculture landscapes”** as a strategic move. The Adaptation Fund Community Protected Area (CPA) project mainly aims at **restoration of degraded forests**, growing variety of plants around the rice paddies with a hope to increase vegetation yields, to install irrigation systems to ensure the rice yields and homestead vegetables, as well as, provide livelihood alternatives for the local target communities.

The project is ensuring restoration of degraded CPA forests at an extensive scale using multi-use forest species that supply a diverse range of goods for commercial and domestic use and are particularly effective at binding and conserving soils. It is also **strengthening systems for patrolling the CPA forests to prevent illegal logging and land clearance** by CPA community members as well as outside intruders.

The project aims at intensifying and diversifying agricultural production by: i) enhancing rice yields by planting multiuse trees around existing rice paddies; ii) improving farming techniques through conservation agriculture practices; iii) piloting drought-tolerant rice varieties; and iv) implementing a suite of additional adaptation interventions to complement the eco-agriculture approach i.e. constructing dams/ponds and canal for increasing water supply, cutting firebreaks, distributing drought-resilient seeds stocks, establishing woodlots, improving post-harvest storage techniques and improving pest and disease management.

The project seeks to promote proper management of eco-agriculture and biodiversity particularly at the terrestrial ecosystem level with a view to mainstreaming the ecosystem approach in policymaking and implementation processes, whilst assisting the reversal of ecosystem degradation.

### **Case Study 3**

**Honduras, *Ecosystem-Based Adaptation at Communities of the Central Forest Corridor in Tegucigalpa***, implemented by the United Nations Development Programme (UNDP)

Funding amount: US\$ 4.47 Million; Project duration: 4 years

The main objective of the project, which builds on an earlier AF-funded project in the same region, is to increase climate resilience of the most vulnerable communities in the Central Forest Corridor (CFC) with an emphasis on securing livelihoods and the continued provision of ecosystem goods and services. The CFC is under threat of the impacts of climate change as rising temperatures, changes in rainfall patterns, and in the frequency and intensity of extreme events. These have led to pressures over water resources availability, forest fires, bark beetle plague and significant losses of biodiversity due to habitat degradation, species population decline and ecosystem services loss. The climate change impacts further exacerbate existing pressures resulting from population growth, deficit in water supply due to an increase in demand, illegal logging and inadequate forest management practices (e.g. Aggressive resin extraction practices) and land use and forest conversion to other uses (agriculture, coffee production).

Enhancement of biodiversity and ecosystem services represents a key adaptation strategy for communities of CFC. On the ground adaptation measures for forest, land and water resources management supported by the project include: **Reforestation of pine and mixed forest areas damaged by drought-induced pest and fire hazards; Introduction of protection measures against fires, pests, land use change, and unsustainable forest use to assist in natural regeneration of forests** and; **Implementation of drought management adaptation measures** to optimize the use of water resources for agriculture and domestic use. These measures will contribute to enhancing resilience of forests against

drought induced impacts (fires, pests), and in turn will reduce also vulnerabilities of communities of CFC depending on ecosystem services of forests.

The use of agroforestry systems in line with the Agroforestry Policy and the National Agroforestry Sustainable Productive Landscapes Program are being promoted. Training will be provided to key stakeholders involved in restoration as municipal governments, communities, private landowners, agroforestry groups, co-manager organizations of protected areas, advisory councils, agroforestry cooperatives, and other relevant forestry sector actors.

Enhanced and more sustainable practices will be supported for the use of forest resources, including **training of community forest management groups on good practices of charcoal production and resin extraction**, (e.g. the use of non-invasive techniques for trees). The **project is providing efficient eco-stoves** to reduce pressure on firewood consumption by families. Water management adaptation measures will involve: **protection of water sources and springs**. Soil and water conservation measures such as **terracing in slopes, intercropping, mulching, enhanced agroforestry** and silvo-pastoral techniques are being introduced. The project is introducing organic agricultural techniques, drought-resilient crop varieties and crop diversification.

#### **Case Study 4**

**Seychelles, *Ecosystem Based Adaptation to Climate Change in Seychelles***, implemented by the United Nations Development Programme (UNDP)

Funding amount: US\$ 6.45 Million; Project duration: 5.5 years

The objective of the project in Seychelles is to incorporate ecosystem-based adaptation into the country's climate change risk management system to safeguard water supplies threatened by climate change induced perturbations in rainfall and, to buffer expected enhanced erosion and coastal flooding risks arising as a result of higher sea levels and increased storm surges.

The project predominantly targets Mahe and Praslin; the two largest islands of the widely dispersed archipelago. For the former, where it is estimated that sea levels are rising by 1.46 mm per year, one approach has been to **rehabilitate badly functioning wetlands to the island's north-western side**. The targeted wetlands play an important role in decreasing inland flood vulnerability as they can reduce water velocity, store excess rainfall, and help to form natural flood-ways – the project rehabilitated these wetlands, as well as others in the Seychelles.

Under its first component, the project has **maintained and enhanced upland wetlands** in select watersheds and **strengthened the integrity of the surrounding forest landscape and its water provisioning services**. It is doing this through reforestation, removal of invasive alien species and re-colonizing with native plants, retaining and improving water holding capacity (and biodiversity features) of the watersheds, improving run-of river barrages and water control structures, sustainably managing watercourses and promoting local stewardship of watersheds.

**Watershed rehabilitation** is being implemented in selected watersheds covering 1,800 ha on Mahe Island and about 1,200 hectares on Praslin Island. The project has demonstrated a potential to replicate the forest and wetland rehabilitation programme outside the project area, since there has been very little successful forest and wetland rehabilitation applied in Seychelles to date. The project has **developed and enhanced the capacity of community members in forest and wetland rehabilitation techniques**,

**particularly through the Watershed Committees.** This has created a sense of community ownership and community members are contributing towards the implementation of project activities initiated by the project team. The communities in the watersheds recognise that they are the stewards of their natural resources and they now understand the benefits of watershed management. Key to project success is social engagement through volunteering and community participation, and it is noted that the project has been very successful in establishing a sense of ownership of EbA activities among the target communities

The project strategy also focused on **developing the policy framework for watershed management, which is needed to support EbA measures to address water scarcity and flooding problems.** Activities generated appropriate legislation, regulations, standards and guidelines for watershed and coastal protection. The strategy increased the capacity to respond to climate change through integrated watershed and coastal management. This has increased the awareness, skills and responsibilities of a wide range of stakeholders including district authorities and community organizations in EbA for watersheds and coastal areas, and built a lasting basis for further education, training and application in watershed and coastal ecosystem rehabilitation.

### **Case Study 5**

**India, Conservation and Management of Coastal Resources as a Potential Adaptation Strategy for Sea Level Rise,** implemented by National Bank for Agriculture and Rural Development (NABARD)  
Funding amount: US\$ 0.68 Million; Project duration: 4 years

The aim of the project is to overcome the consequences of salinization and other impacts of the coastal area due to sea level rise and seawater inundation due to increased cyclonic storms and storm surges through appropriate adaptation strategies such as restoration of degraded mangroves and demonstration of **Integrated Mangrove Fishery Farming System (IMFFS).**

**Restoration of mangroves** is being implemented **in degraded, saline and unprotected mangrove areas** located in Revenue Department land and thus, it will serve as a model for management of similar areas of unprotected mangroves. **Restoration of degraded mangroves is being undertaken with native multiple mangrove species** that will improve the health of the mangrove forest, which is expected to avoid ingress of seawater.

The project brought about a change in conservation of the Sorlagondi forest, where local communities are engaged in cage cultivation and planting, apart from growing the mangrove cover under the Sorlagondi mangrove forest restoration project. IMFFS is being demonstrated in lands owned by small aqua farms so that it can be a model for other farmers both to sustain income from fish farming as well as improve protection from cyclonic storms. IMFFS is increasing the opportunity to **integrate both physical security against sea level rise and livelihood security of the coastal community.** The raised bunds of this farming system act as embankments protecting coastal villages from saltwater intrusion during storm surges. At least 15 ponds were dug for aquaculture that is ensuring the sustainable livelihoods as part of the project. The same beneficiaries are being involved in collection and conservation of seed of the seven mangrove plant species.

One central mangrove nursery is established serving three villages. In each year of implementation about 200,000 mangrove saplings will be raised in the mangrove nursery for planting in 100 ha. The **mangrove nursery is useful as the survival rate of nursery raised seedlings in restoration areas is higher** than the

direct dibbled seeds. This is due to well established root system, as the mangrove saplings will be maintained for 8-9 months in the nursery before transplantation in the degraded areas.

In addition, staff of the Forest and Fisheries Department working at the field level are being trained in mangrove restoration. In all the training programmes three different approaches are being followed: i) theoretical orientation to scientific basis of mangrove restoration, ii) field visits and iii) hands on training. These technical trainings provided to community and stakeholders will help in sustaining the mangrove restoration workers in the future.

### **Case study 6**

**Costa Rica**, *Reducing the Vulnerability by Focusing on Critical Sectors (Agriculture, Water Resources and Coastlines) in order to Reduce the Negative Impacts of Climate Change and Improve the Resilience of these Sectors*, implemented by Fundecooperación para el Desarrollo Sostenible (Fundecooperacion) Funding amount: US\$ 9.97 Million; Project duration: 5 years

The aim of the programme is to reduce climate vulnerability by focusing on critical sectors (agriculture, water resources, and coastal zones) in order to reduce the negative impacts of climate change, and improve the resilience of those populations. This programme is seeking to increase climate resilience by working directly with local stakeholders and anticipated beneficiaries through the implementation of adaptation projects in each of the geographical areas selected.

The programme in Costa Rica is **assisting local indigenous communities** that are among the country's most economically- and climate-vulnerable groups adapt and build resilience to climate change by **helping them rescue their own traditional, sustainable farming methods**.

The focus is on livestock, crop and plant diversification, crop rotation, and chemical-free fertilizers. The approach produces healthy nutrition and natural medicine year-round while protecting natural resources, forests and biodiversity, and spreading indigenous knowledge.

40 projects from 100 submissions were pre-selected based on criteria ranging are being implemented by Fundecooperación together with more than 80 local, national and regional organizations acting as executing entities.

The programme's wide-ranging activities enable localized solutions to reach many at-risk communities. Key aspects of the overall programme include implementing climate smart agricultural and land management practices promoting **water, soil conservation and sustainable livelihoods**; developing water efficient infrastructure and **watershed management plans; improving aqueduct filtration; protecting aquifer recharge areas through reforestation, water treatment and livestock management; sustainable fishing practices, restoring reefs, mangroves and shorelines** ; and creating early warning systems and recovery strategies. Projects build local capacity while raising awareness of climate risks and adaptation measures among vulnerable communities, producers, institutions, schools and relevant stakeholders.

**Annex 1: Nature Based Solutions to Adapt to Climate Change from the Adaptation Fund Portfolio of Projects/Programmes (selected projects)**

Project Title	Country	Project Financing Total (United States dollars)	Sector	Nature Based Solutions
Ecosystem Based Adaptation Approach to Maintaining Water Security in Critical Water Catchments in Mongolia, <b>UNDP</b>	Mongolia	5,500,000	Ecosystem-Based Adaptation	Enhancing ecosystem resilience through a <b>landscape approach by balancing pasture-water-livestock ratios</b> . It is rehabilitating springs in sub catchments and, developing <b>synergies between water and pasture management</b> through <b>energy management</b> i.e. briquetting, which saves manure and wood used for fuel. The project is <b>enhancing the ecological resilience of rangelands</b> through the <b>enlargement of protected areas and improving pasture productivity</b> . The project is thus reducing the exposure of communities to negative climate change impacts (water scarcity and declining feed resources) by enabling herders to move to more productive pastures by rehabilitating water resources there, thus improving the water-pasture-livestock balances.
Enhancing Climate Resilience of Rural Communities Living in Protected Areas of Cambodia, <b>UNEP</b>	Cambodia	4,954,273	Ecosystem-Based Adaptation	Focusing on <b>protecting broad scale “Eco-agriculture landscapes”</b> through the restoration of degraded forests, growing variety of plants around the rice/ <i>chamkar</i> <sup>2</sup> paddies with a hope to increase vegetation. The project is ensuring restoration of degraded CPA forests at an extensive scale using multi-use forest species that supply a diverse range of goods for commercial and domestic use and are particularly effective at binding and conserving soils. It is also <b>strengthening systems for patrolling the CPA forests to prevent illegal logging and land clearance</b> by CPA community members as well as outside intruders.
Ecosystem Based Approaches for Reducing the Vulnerability of Food Security to the Impacts of Climate Change in the Chaco region of Paraguay, <b>UNEP</b>	Paraguay	7,128,450	Ecosystem-Based Adaptation	Focusing on the <b>conservation agriculture</b> and restoration of forests, <b>agroforestry</b> , silvo-pastoralism, agro-ecological farming (including reduction in the use of chemical fertilizers) and sustainable ranching practices. <b>Sustainable forest management</b> practices employed by the project benefits ecosystem services, strengthens soil structure and biodiversity and, supports pollination.

<sup>2</sup> Chamkar: field in native Khmer language

Ecosystem-Based Adaptation at Communities of the Central Forest Corridor in Tegucigalpa, <b>UNDP</b>	Honduras	4,379,700	Ecosystem-Based Adaptation	Supporting enhanced and more sustainable practices for the use of forest resources, including <b>training of community forest management groups on good practices of charcoal production and resin extraction</b> , (e.g. the use of non-invasive techniques for trees), the <b>installation of efficient eco-stoves</b> to reduce pressure on firewood consumption by families and reforestation to manage extreme rainfall variability, flooding, erosion and landslides. Water management adaptation measures involve: <b>protection of water sources and springs</b> . Soil and water conservation measures such as <b>terracing in slopes, intercropping, mulching, enhanced agroforestry</b> and silvo-pastoral techniques are being introduced. The project is introducing organic agricultural techniques, drought-resilient crop varieties and crop diversification.
Enhancing climate resilience of rural communities and ecosystems in Ahuachapán -Sur, El Salvador, <b>UNDP</b>	El Salvador	8,484,503	Ecosystem-Based Adaptation	Promoting a landscape approach towards increasing forest cover, <b>improving the hydrological cycle, increasing the amount of available water, and regulating surface and groundwater flows</b> , while maintaining and improving water supply and quality. Critical ecosystem services in forest landscapes are restored and enhanced to better manage climate change impacts through <b>forest landscape restoration, sustainable agriculture and integrated water resources management</b> . Land degradation is reduced (or reversed) and productivity is maintained, contributing to better food security and community resilience.
Building Adaptive Capacities of Communities, Livelihoods and Ecological Security in the Kanha-Pench Corridor (KPC) of Madhya Pradesh, <b>NABARD</b>	India	2,556,093	Forests	Implementing <b>climate-resilient approaches in the forestry and wildlife sectors</b> in 56 villages that lie in and around the KPC which is one of the 4 forested wildlife movement corridors in the Satpuda – Maikal Landscape (SML). The project is building the adaptive capacities of communities, livelihoods and ecological security through <b>measures for sustainable management</b> of forest area and development of watersheds and small catchments to increase the soil moisture content and fertility. Biogas is being promoted over fuel wood, provision of energy efficient cooking <i>chullahs</i> <sup>3</sup> , at a household level with the dual objective of reducing the extraction pressure on the surrounding forests and reduce women drudgery.

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<sup>3</sup> *Chullas* : stoves



Reducing the Vulnerability by Focusing on Critical Sectors (Agriculture, Water Resources and Coastlines) in order to Reduce the Negative Impacts of Climate Change and Improve the Resilience of these Sectors, <b>Fundecooperación Para el Desarrollo Sostenible (Fundecooperación)</b>	Costa Rica	9,970,000	Multi-Sector	Assisting local indigenous communities that are among the country's most economically- and climate-vulnerable groups adapt and build resilience to climate change by helping them rescue their own traditional, sustainable farming methods. The project focuses on <b>restoring diversified production systems to enhance food security</b> in Valle de La Estrella, Talamanca (a Caribbean region). It is strengthening farming productivity through <b>climate-resilient agricultural and livestock practices and chemical-free fertilizers</b> . It is <b>restoring natural coastal protections and</b> adaptive fishing practices.
An integrated approach to physical adaptation and community resilience in Antigua and Barbuda's Northwest McKinnon's watershed, <b>Department of Environment (DoE)</b>	Antigua and Barbuda	9,970,000	Multi-Sector	<b>Restoring natural drainage canals</b> and ponds to protect against sea rise and floods, and stagnant water pools that attract mosquito breeding and disease vectors. Specifically, the project is upgrading the waterways leading into McKinnon's pond to enhance resilience to projected climate change impacts, including measures responsive to disease vectors. The project is <b>combining technical engineering solutions</b> (design-based vector, mosquito control measures, drainage and retention ponds, to build resilience to the latest climate change projections) <b>with an ecosystem-based adaptation (wetland restoration to address disease vectors)</b> to ensure proper functioning of ecosystems to support natural larval predators to prevent stagnation.
AYNINACUY: Strengthening the livelihoods of vulnerable highland communities in the provinces of Arequipa, Caylloma, Condesuyos, Castilla and La Union in the Region of Arequipa, Peru, <b>Development Bank of Latin America (CAF)</b>	Peru	2,941,446	Rural Development	Promoting activities focused on <b>pasture management and improved livestock management to increase the resilience of wetlands and help curb land degradation and desertification</b> . The project is <b>introducing climate resistant native species</b> (red clover and white clover), <b>cold resistant species for pastures</b> (ryegrass, dactylis glomerata) to guarantee sufficient pasture areas and to <b>restore and expand natural areas (bofedales-high altitude wetlands)</b> . Existing rustic channels that provide for the distribution of water to these areas will also be improved. Improved livestock management practices and <b>introduction of the use of high altitude foraging grains</b> to complement and improve alpaca nutrition to increase their resistance to cold weather.
Addressing Climate Change Impacts on	Sri Lanka	7,989,727	Rural Development	Introducing and <b>promoting drought tolerant crop varieties and agronomic practices to</b>

<p>Marginalized Agricultural Communities Living in the Mahaweli River Basin of Sri Lanka, <b>World Food Programme (WFP)</b></p>				<p><b>counter effects of rainfall variability.</b> A number of drought tolerant crop varieties have been cultivated in the uplands and forest nurseries have also been established. The <b>Climate Smart Village/Agriculture program</b> is raising awareness of the farmers to practice different adaptation activities to be more weather, soil, water, energy and knowledge smart. Cultivation of <b>drought tolerant crop varieties</b> reforestation of perennial trees were introduced as a part of water shed management interventions.</p>
<p>Increasing adaptive capacity of local communities, ecosystems and hydroelectric systems in the Río Blanco upper watershed (Toachi-Pilatón watershed) with a focus on Ecosystem and Community Based Adaptation and Integrated Adaptive Watershed Management, <b>CAF</b></p>	<p>Ecuador</p>	<p>7,449,468</p>	<p>Rural Development</p>	<p><b>Strengthening the protected areas with the creation of the bio corridors</b> that will allow connectivity and ensure that the role of natural habitats is integrated into the adaptation measures to be integrated into the local development plans. It includes activities that support the conservation of forests to secure key ecosystem services. (i) expanding protection of existing forests under mechanisms of conservation and sustainable forest management, (ii) strengthening the management of existing protected forests and private reserves, and (iii) building artisanal sediment retention dams in key risk areas. The project will include implementation of <b>sustainable agriculture practices to reduce greenhouse gas emission, contributing to climate change mitigation.</b> These actions enable the project to achieve its objective to strengthen the adaptive capacity of the local population in the Toachi – Pilatón water system.</p>
<p>Reducing Vulnerability to Climate Change in North West Rwanda through Community Based Adaptation, <b>Ministry of Environment of Rwanda</b></p>	<p>Rwanda</p>	<p>9,969,619</p>	<p>Rural Development</p>	<p>Building adaption in the agricultural Mugogo low land through activities focused on <b>de-silting the caves, rehabilitation of gullies</b> in the watershed, rehabilitation of waterways, digging terraces and <b>afforestation</b> starting from the upstream of Kinoni river, <b>rehabilitating drainage networks and channels</b> , establishing buffer zones and checking dams along Kinoni river tributaries, among others. The project is working with communities to phase out tillage systems and <b>restore permanent vegetative cover to reduce erosion.</b> The project is supporting poor farmers cultivating marginal lands to transition into alternative livelihoods via paid work for planting and <b>integration of crop and livestock production</b> systems to minimize the impact of variable rainfall on rural livelihoods (agro-sylvopastoral systems, integrated agriculture etc.)</p>

<p>Ecosystem Based Adaptation to Climate Change in Seychelles, <b>UNDP</b></p>	<p>Seychelles</p>	<p>6,455,750</p>	<p>Water Management</p>	<p>Developing and enhancing the capacity of the communities in the project area to manage their forest and water resource. The establishment of <b>water control structures and improved water flows</b> will make water more available to communities in times of drought and will also make farming systems more resilient to changes in climatic conditions. Areas of vulnerability of communities - particularly flood and salinity risks - are specifically addressed by the project measures. <b>Agro-forestry</b> is one of the very successful measures that has been implemented by the project to battle the issues of long drought seasons.</p>
<p>Restoring marine ecosystem services by rehabilitating coral reefs to meet a changing climate future, <b>UNDP</b></p>	<p>Regional (Mauritius, Seychelles)</p>	<p>10,000,000</p>	<p>Food Security</p>	<p>Develop sustainable partnerships and community-based, business-driven approaches for <b>reef restoration</b>, establish coral farming and nursery facilities, and actively <b>restore degraded reefs</b>. On a regional and global level, the project will improve understanding on how to use <b>coral reef restoration as a tool for climate change adaptation</b>, provide models for sustainable management of reef ecosystems, and build capacity for long-term restoration and management of these precious habitats. Coral farming and nursery facilities will be established at a sufficient scale for more climate change resilient corals. The health of <b>degraded reefs will be restored</b>, through <b>active restoration work, maintenance and monitoring</b> efforts, leading to greater <b>protection of shore from flooding and storm damage</b>. Consequently, the project will ensure improved livelihoods through coral nurseries, transplantation sites and ecotourism activities.</p>
<p>Adaptation Initiative for Climate Vulnerable Offshore Small Islands and Riverine Charland in Bangladesh, <b>UNDP</b></p>	<p>Bangladesh</p>	<p>9,995,369</p>	<p>DRR</p>	<p>Reducing environmental degradation through the <b>application of EbA (planting of vetiver grass and native mangrove trees) for strengthening the existing embankments</b>. Carbon sequestration and biodiversity benefits, which will be achieved through the planting of mangrove trees in Mujibnagar Union. The dissemination of knowledge on the economic, social and environmental benefits of maintaining mangrove forests further support the long-term sustainability of these benefits amongst local communities. Rehabilitated embankments and riverbanks will protect valuable agricultural land against extreme flooding, erosion, storm surges and saline intrusion. <b>Engaging communities in the management of this protective infrastructure</b> will provide additional economic</p>

				benefits through the development of alternative livelihood opportunities.
Climate Change Adaptation Programme in the Coastal Zone of Mauritius, <b>UNDP</b>	Mauritius	9,119,240	Coastal Management	Focusing on <b>combating beach erosion and flood risk</b> in the coastal areas of Mon Choisy, Riviere des Galets, and Quatre Soeurs with <b>a suite of infrastructure and natural protection measures</b> (mangroves and other shoreline vegetation to reduce erosion). The project employed a cross disciplinary and multi-stakeholder approach for mangrove restoration activities – the forestry service and the Ministry of Agro Industry and food security, Ministry of Fisheries have in fact been involved in the mangrove project since the project conception until the final completion. The project supported mangrove project was implemented based on a <b>community-based adaptation model</b> .
Reduction of vulnerability to coastal flooding through ecosystem-based adaptation in the south of Artemisa and Mayabeque provinces, <b>UNDP</b>	Cuba	6,067,320	Coastal Management	<b>Engaging youth to plant mangroves along vulnerable coasts to restore biodiversity and natural protections</b> against sea surges and protect inland water supplies. Artemisa and Mayabeque Provinces are the focus of the project, covering 52 miles of narrow coast dominated by wetlands and mangroves which are one of Cuba’s most vulnerable regions. Communities are <b>planting mangroves, fostering their natural regeneration, placing stake lines to reduce wave impacts, cleaning canals to restore water flow and promoting forest growth to combat</b> climate change-associated sea level rise, intense tropical storms, saltwater surges and flooding that impact vital farm irrigation and drinking water sources.
Belize Marine Conservation and Climate Adaptation Initiative, <b>International Bank for Reconstruction and Development (IBRD)</b>	Belize	6,000,000	Coastal Management	Aiming to enhance marine conservation and climate adaptation measures to strengthen the climate resilience of the Belize Barrier Reef system, among others. This includes <b>improvement of the coral reef protection through expanded marine protected areas and coral out planting</b> . The project aims not only to restore and conserve biodiversity but to support <b>diversification of livelihoods to ease pressures on ecosystems</b> and ensure the environmental protection measures can be implemented by local communities who in turn add to their income streams.
Conservation and Management of Coastal Resources as a Potential Adaptation Strategy	India	689,264	Coastal Management	Restoring degraded mangroves and demonstration of <b>Integrated Mangrove Fishery Farming System (IMFFS)</b> . <b>Restoration of mangroves</b> is being implemented in <b>degraded, saline and unprotected mangrove areas</b> located in Revenue Department land and

for Sea Level Rise, <b>NABARD</b>				thus, it will serve as a model for management of similar areas of unprotected mangroves. Restoration of degraded mangroves is being undertaken with native multiple mangrove species that will improve the health of the mangrove forest, which is expected to avoid ingress of seawater. IMFFS is increasing the opportunity to <b>integrate both physical security against sea level rise and livelihood security of the coastal community</b> . The raised bunds of this farming system act as embankments protecting coastal villages from saltwater intrusion during storm surges.
Adaptation to the Impacts of Climate Change on Peru's Coastal Marine Ecosystems and Fisheries, <b>Peruvian Trust Fund for National Parks and Protected Areas (PROFONANPE)</b>	Peru	6,950,239	Coastal Management	Facilitating EbA for the coastal marine domain at country-level and to implement an <b>Ecosystem Approach to Fisheries (EAF)</b> <sup>4</sup> including artisanal fishing. The project involves a sustainable dynamic surveillance, prediction and information system to fill the existing gap of reliable climatic and non-climatic data, which is key to an effective adaptation process of marine and coastal ecosystems. It builds on current national efforts to prevent overfishing caused by industrial fleets and seeks the development of sustainable management of coastal ecosystems, following the EAF and the transfer of management rights to local artisanal fishing communities but limiting open access to resources. The concrete adaptation activities for <b>small-scale aquaculture, co-management of benthic fishing ground areas and the implementation of “no-take” zones</b> are being supported.
Developing Agro-Pastoral Shade Gardens as an Adaptation Strategy for Poor Rural Communities, <b>UNDP</b>	Djibouti	4,658,556	Agriculture	Securing sustainable access to water resources, <b>developing shade gardens to support diversified and climate-resilient agro-pastoral production systems</b> , and securing access to finance for relevant income-generating activities. The project aimed to bridge current knowledge and capacity gaps relating to the understanding of local hydrological resources through an in-depth study of the water resource potential in the target regions and its actual and expected evolution under climatically induced pressures. The project developed irrigation networks to support family and community <b>oasis-like shade gardens using date palm as tree cover to limit evaporation</b> and create favorable microclimates

<sup>4</sup> EAF recognizes the interdependence between human well-being and ecosystem health and the need to maintain ecosystems productivity for present and future generations

				for forage and vegetable growth, replicating the traditional practices imported by Yemeni populations in Djibouti centuries ago.
Developing Climate Resilience of Farming Communities in the drought prone parts of Uzbekistan, <b>UNDP</b>	Uzbekistan	5,415,103	Agriculture	Incorporating a <b>landscape level approach to adaptation to climate change risks of increased aridity</b> . The project is promoting carefully selected agronomic, soil and water conservation measures that constitute conservation agriculture principles. <b>Local saksaul (Haloxylon shrubs) and tamarix plantations are supported to deliver sand stabilization and soil desalinization function</b> for targeted farms and adjacent farmlands. The project is covering the additional cost of sand fixation and rehabilitation efforts that are underpinned by localized climate and wind models. This has increased land productivity of adjacent farm and pasture lands which provides sustainable development of livestock and dairy production by most vulnerable communities in drought years.
Climate changes adaptation project in oasis zones - PACC-ZO, <b>Agence pour le Developpement Agricole (ADA)</b>	Morocco	9,970,000	Agriculture	Employing <b>agro-ecological and conservation techniques</b> to improve agricultural production within the context of the increasing of water scarcity, though conserving water and improving the soil structure. The project is enhancing the resilience of the oasis agro-system through the <b>maintenance or redevelopment of specific crops</b> (date palm cultivation, fruit trees, fodder crops and vegetable crops) <b>coupled with a system of animal husbandry integrated with the oasis agriculture</b> (including manure production, biogas, etc.). The project is <b>enhancing ecosystem climate resilience by helping to save the oasis</b> in a sustainable way. To reverse trends of drying palm groves, overexploitation of groundwater resources and degraded water sources, the project aims to preserve palm trees and ensure drinking water supplies.