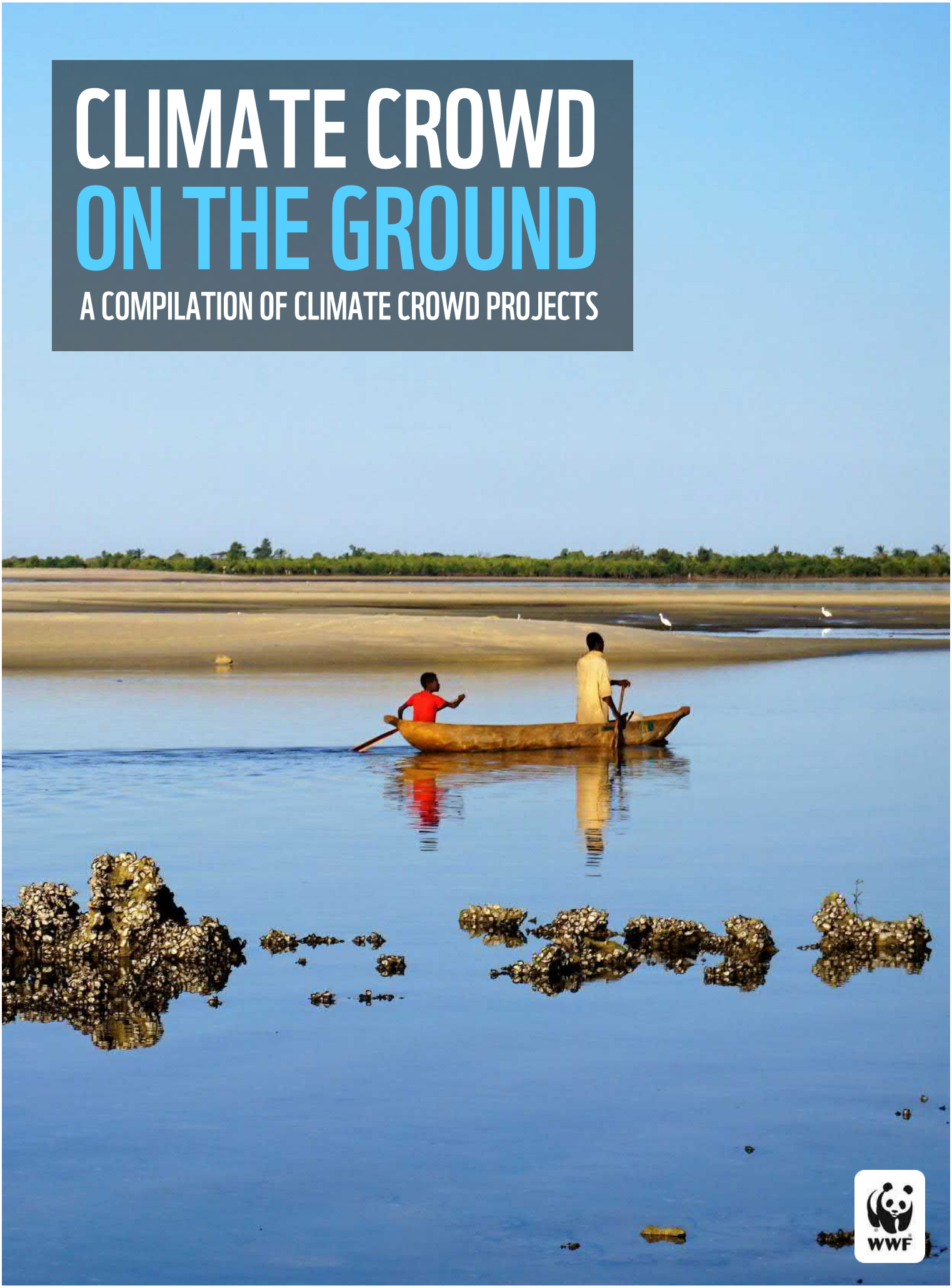
CLIMATE CROWD ON THE GROUND

A COMPILATION OF CLIMATE CROWD PROJECTS



CITATION

Climate Crowd. 2021. "Climate Crowd on the Ground: A Compilation of Climate Crowd Projects." World Wildlife Fund, Washington, DC.

All images courtesy of Climate Crowd partners

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Foreword

The voice of rural communities is frequently missing from mainstream climate science, even though they are all on the front lines of climate change. This was the motivation to create Climate Crowd, which first got started in 2014, with the idea to crowdsource data on how communities were being impacted by and responding to changes in weather and climate. Often, communities are already coping with these impacts, sometimes in ways that can be harmful to nature. Climate Crowd learns from their experiences, captures their stories, and helps them with practical, nature-compatible ways to deal with their challenges. Often, the solutions are shaped by a community's own traditional, indigenous, and local knowledge and practices.

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PROJECTS

From humble beginnings, with a $30,000 grant from WWF innovation funds, Climate Crowd has grown to include data from over 30 countries and 15 on-the-ground projects in 8 countries to date, with data collection and on-the-ground projects planned across many more sites over the coming year. The Climate Crowd methodology is to provide training and guidance to local partners who work with communities to collect data using a key informant survey. The Climate Crowd team then analyzes the data, compiling summary reports that highlight key trends. The findings are then presented back to the communities, and we work with them to co-design and implement on-the-ground projects to address climate vulnerabilities using funding from Climate Crowd.

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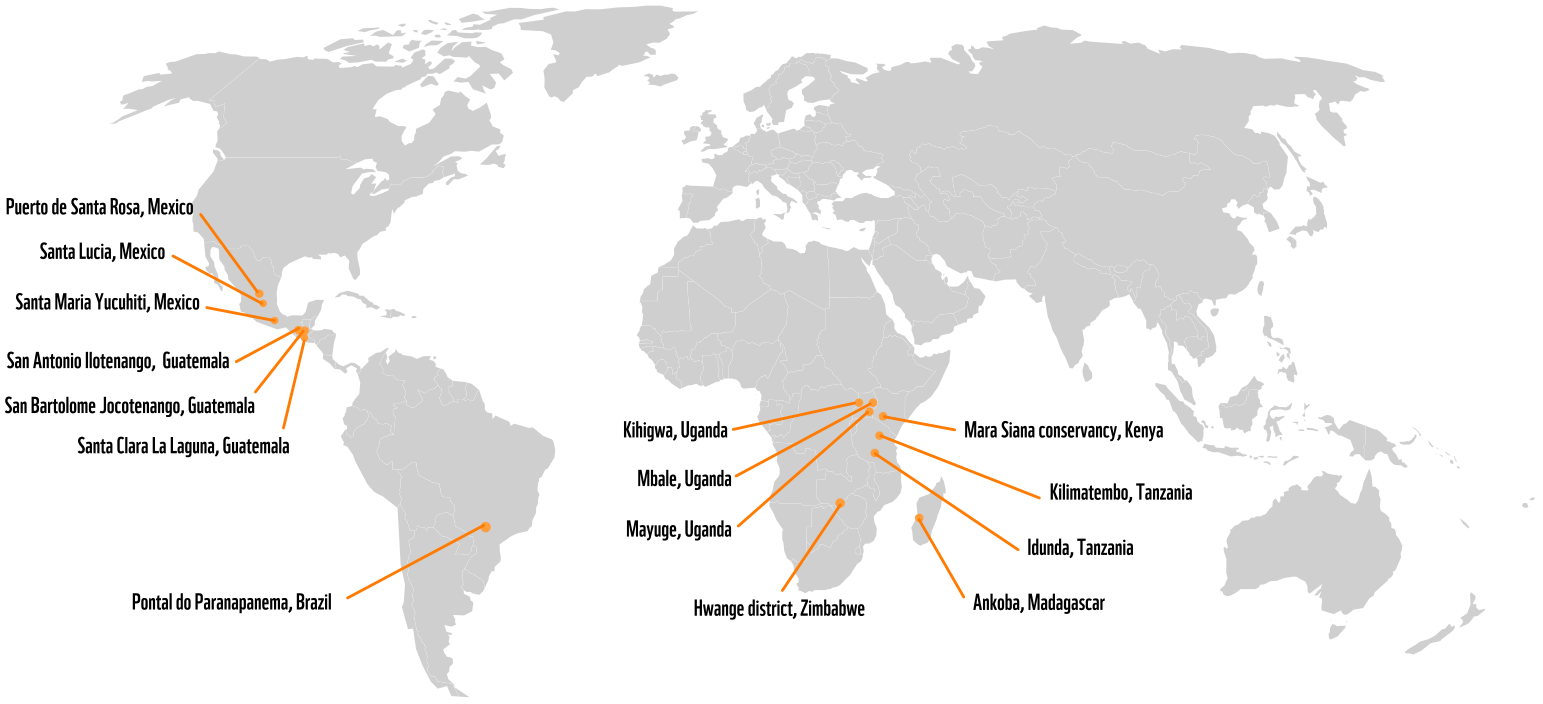
COUNTRIES

As the climate changes and communities adapt, Climate Crowd wants to help them do so in ways that benefit both people and nature. The number of partners we work with and the geographies we work in is growing rapidly, and I encourage you to check in regularly at wwfclimatecrowd.org. I am indebted to many Climate Crowd partners over the years for all the fantastic work detailed in the following pages, including the communities, funders, NGO partners, and many others. I would also like to acknowledge Annika Bowman and Rebecca Snyder for all their efforts in compiling this publication.

Yours sincerely,

Nikhil K. Advani, Ph.D.
Director – Climate, Communities and Wildlife
World Wildlife Fund



BUILDING A WILDLIFE CORRIDOR THROUGH REFORESTATION

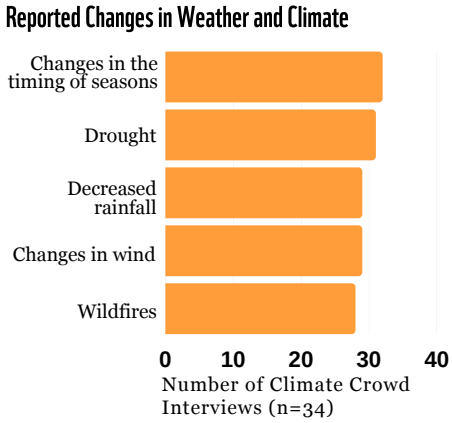
Brazil

Farmers in **Pontal do Paranapanema** region of Sao Paolo state live nearby Morro do Diabo State Park, one of the last remaining areas of intact Atlantic Forest.

PURPOSE

Restore a local watershed and improve habitat connectivity.

LOCAL CLIMATE THREATS



Community members from Pontal do Paranapanema report the following impacts:

- Drying of rivers, springs and streams
- Reduced crop production due to drought, heat and pests
- Reduced pasture for livestock due to dry conditions
- Increased human-wildlife conflict and degradation of natural habitat

PROJECT DESIGN

The Pontal do Paranapanema region has grown hotter and drier in recent years, making it difficult to grow crops and find sufficient food for livestock. Wildlife are also feeling the effects , with more venturing onto farms in absence of suitable habitat. WWF and the Institute for Ecological Research (IPE) joined forces to restore a local watershed and improve habitat connectivity through community-based reforestation. Once mature, a newly planted tropical forest will provide direct benefits to people such as water provision services, decreased damage from wind storms, carbon sequestration and protection from soil degradation. The new forest will also serve as an important habitat corridor for local wildlife, including the endangered black lion tamarin, as well as ocelots, jaguars, monkeys, and armadillos, and create a buffer zone for The Black Lion Tamarin Ecological Station.

ACTIVITIES

- Participatory planning: Stakeholders chose a parcel of degraded land bordering the Black Lion Tamarin Ecological Station for reforestation.
- Hiring of local contractors to conduct soil preparation using plowing, sorting and manual removal of grasses/other exotic species.
- Capacity building: Project organizers conducted lectures and training workshops in communities bordering the protected area.
- Materials: Sourcing of seeds including both native and fast-growing pioneer species from local nurseries.
- Reforestation: Through community mobilization, seedlings were planted at the start of the rainy season and spaced 6.5 feet apart, with 8 feet between each row
- Participatory monitoring: Project staff and stakeholders tracked the growth of planted trees and conducted maintenance, including site visits to perform ant control, prevent invasion of grasses and replant more than 200 trees to replace those that did not survive.

PROJECT OUTCOMES

2000 tree seedlings (48 native species) planted

Over 600 community members trained on local conservation and tree planting techniques

Local nurseries supply seeds for restoration

Training on reforestation techniques

RAINWATER HARVESTING SYSTEMS FOR SCHOOL GARDEN IRRIGATION

Guatemala

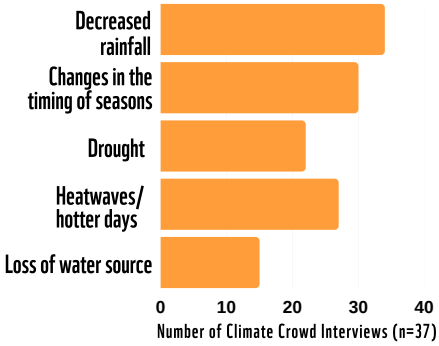
The municipality of **San Antonio Ilotenango** is located at the start of the dry corridor in Guatemala's El Quiché department.

PURPOSE

Combat childhood malnutrition in communities affected by rising temperatures and drought.

LOCAL CLIMATE THREATS

Reported Changes in Weather and Climate



Community members from San Antonio Ilotenango report the following impacts:

- Widespread water insecurity due to weak and infrequent rainfall and shorter rainy seasons
- Severe crop loss from intensifying dry spells
- Chronic malnutrition from agricultural declines
- Increased use of pesticides and fertilizers to salvage crops
- Increased deforestation to expand viable agricultural land

PROJECT DESIGN

In San Antonio Ilotenango, community members face growing challenges from a lack of water available for irrigation and a lack of healthy food options for school meals, contributing to chronic malnutrition in the municipality. To address these issues, Climate Crowd collaborated with a Peace Corps volunteer to build a rain catchment system and vegetable garden at a local primary school. The rainwater catchment system and storage tank irrigate the school garden during the canicula (the short dry period) and extend the viability of the garden throughout the dry season, giving students access to fresh produce in their school meals all year round.

ACTIVITIES

- School visits: The project began with a series of school visits to assess the feasibility of a water capture project and gauge interest for collaboration.
- Irrigation system design: The project team selected the design and layout of the water capture and irrigation system based on input from experts from a local NGO called Water for People.
- Installing rainwater harvesting system: Tank construction was completed in two weeks by a local contractor and project partners.
- Building the school garden: Project partners removed trash, debris, and grass from a patch of land at the school and tilled the soil for planting.
- Training of students: project leads trained students on how to make organic compost, sow seeds, and transplant crops. Students helped plant the vegetables, and teachers harvested the crops for student lunches.

Primary school teachers distribute harvest to community members and students

Irrigation system for the school garden

PROJECT OUTCOMES

One rainwater harvesting system installed with the capacity to hold over 3000 gallons of water

861 sq ft of land cultivated on the school grounds

88 pounds of vegetables harvested and distributed to community members in one growing season.

32 students and 7 teachers trained on organic composting, gardening, and water capture system upkeep

The school's new rainwater harvesting tank

DRIP IRRIGATION FOR SMALLHOLDER FARMERS

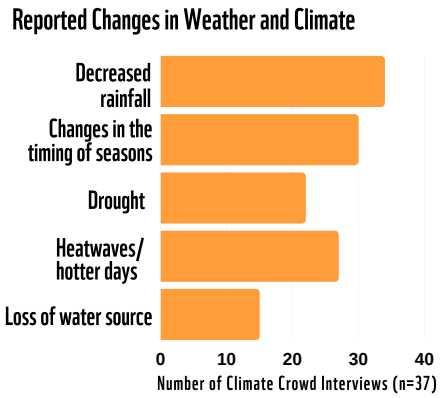
Guatemala

Santa Clara La Laguna is a mountainous town of 11,000 people in the Western Highlands of Guatemala.

PURPOSE

Help smallholder farmers conserve water and improve crop yields threatened by unpredictable rainfall and heatwaves.

LOCAL CLIMATE THREATS



Community members from Santa Clara La Laguna report the following impacts:

- Declining crop yields due to rising temperatures and a lack of rain
- Increased prevalence of pests and diseases affecting crops and natural vegetation
- Water scarcity due to sporadic rainfall
- Changes in farming practices, such as crop type and timing, to compensate for erratic rainfall and seasonal shifts
- More people seeking additional livelihood opportunities to supplement or replace farming income.

PROJECT DESIGN

Declining rainfall threatens subsistence farming in Santa Clara La Laguna. Led by a local Peace Corps volunteer, this project aimed to help smallholder farmers conserve water and increase crop yields by installing a drip irrigation system. The system conserves water by reducing the amount lost to evaporation, by current conventional irrigation techniques, while providing crops with a consistent source of targeted irrigation, regardless of rainfall.

ACTIVITIES

- Identification of drip irrigation sites.
- Training of local community members on drip irrigation installation and maintenance.
- Purchase of materials necessary for the drip irrigation system. The system required PVC tubing, 200 gallon capacity water holding tanks, filters, valves and water distribution tanks.
- Installation of irrigation systems on four plots of land using the help of the farming families.
- Follow up with families and inspect irrigation system functionality as well as water rate.
- Testing of water levels and rates for continued monitoring.

Did you know?

Drip irrigation systems can increase water efficiency by up to 40-70% compared to other forms of irrigation, such as sprinkler systems.* Additionally, drip irrigation systems require less energy, time, and maintenance.

11,000 yards of drip irrigation are installed over 3 acres of farmland

PROJECT OUTCOMES

Improved water security for 14 families

Drip irrigation system installed on 3 acres of land

31 people trained in drip-irrigation system management and maintenance

An irrigation plan is developed to improve water efficiency and crop yields

*Siobhan Fathel. "Drip Irrigation can Save Energy and Money." Pennsylvania State University, 2020.

GREYWATER RECYCYCLING SYSTEMS FOR FARMERS

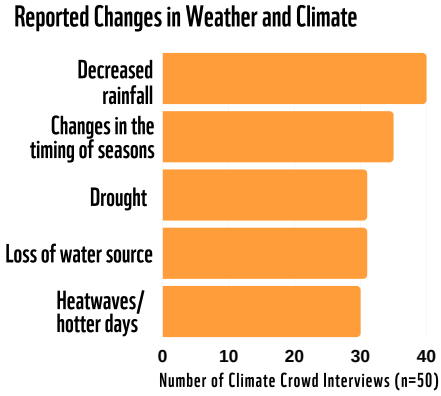
Guatemala

The municipality of **San Bartolome Jocotenango** is located in Guatemala's Quiche department.

PURPOSE

Combat community food insecurity and improve water availability during times of drought.

LOCAL CLIMATE THREATS



Community members from San Bartolome Jocotenango report the following impacts:

- Declining crop yields (e.g. corn and beans) from unreliable rainfall
- Increased deforestation for sellable wood as an alternative to farming
- Dwindling water resources due to intense heatwaves and unpredictable rainfall
- Increased migration to other regions or countries to look for employment

PROJECT DESIGN

While households in San Bartolome Jocotenango lack access to irrigation, piped water is available for household use such as drinking, cooking, cleaning, etc. With rainfall dwindling, and crops suffering as a result, community members in collaboration with a Peace Corps volunteer designed a project to establish greywater filtration systems that enable users to safely and efficiently re-use water to irrigate home garden plots. This intervention will ensure that farmers have a consistent supply of water regardless of rainfall, and help to conserve water thereby reducing pressure on other sources of freshwater.

ACTIVITIES

- Initial project planning and design.
- Construction of two greywater filtration systems: The systems consist of two concrete basins used to capture greywater, and layers of charcoal, ash, sand and rock, that filter debris in combination with nitrogenating plants. The filtered water is collected in a large barrel and connected to a drip irrigation system on the property, where it is used to grow vegetables.
- Construction of three additional systems in Las Cuevas and Chota'aj communities.

PROJECT OUTCOMES

Two greywater filtration systems constructed with three more planned

Improved access to reliable source of water to support local livelihoods

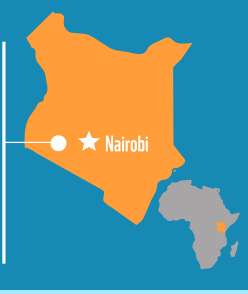
Farm plots before project completion

Project participant testing new irrigation system connected to the greywater filter

IMPROVING WATER ACCESS FOR COMMUNITIES & WILDLIFE

Kenya

Mara Siana Conservancy is located along the border of Kenya's famous Maasai Mara National Reserve, and is home to abundant wildlife and the maasai community.

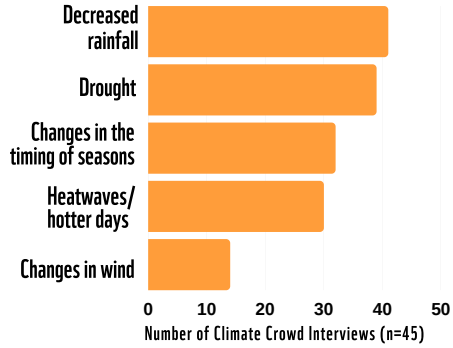


PURPOSE

Decrease human-wildlife conflict over access to water and pasture during periods of drought.

LOCAL CLIMATE THREATS

Reported Changes in Weather and Climate



Community members from the Mara Siana Conservancy report the following impacts:

- Reduced availability of freshwater and pasture
- Death and malnourishment of livestock due to water scarcity and reduced pasture availability
- Increased prevalence of diseases in people and livestock
- Increased human-wildlife conflict, especially involving elephants

PROJECT DESIGN

Intensifying drought has increased competition over water resources between community members, livestock and wildlife in the Mara Siana Conservancy, resulting in frequent instances of human-wildlife conflict. To improve water access for wildlife, especially elephants that frequently venture into villages searching for water, Climate Crowd and WWF-Kenya collaborated to rehabilitate a key water pan. Additionally, through the installation of two rainwater harvesting systems constructed at two primary schools, the project will enhance community access to water and decrease the need to travel long distances into core wildlife areas where human-wildlife conflict often occurs.

ACTIVITIES

- Rehabilitation of a water pan: Project partners widened and deepened a local water pan and reinforced its walls.
- Installation of four rainwater harvesting systems in two primary schools.
- Creation of a community water committee: The committee will keep track of water source users and wildlife sightings.
- Installation of a weather station: In Entumuto tented camp, the station allows local community members to collect and use weather information to better inform decision-making.

PROJECT OUTCOMES

- Watering pan rehabilitated for livestock and wildlife
- Four rainwater harvesting systems installed with a 2,500+ gallon holding capacity each
- 1,500 people with improved water access
- Water committees and fee collection systems established
- Automated weather station installed

Rainwater Harvesting system installed in Nkineji Primary School, Siana

Rehabilitated water pan supports wildlife and livestock

SEAWEED FARMING & BEEKEEPING FOR LIVELIHOOD DIVERSIFICATION

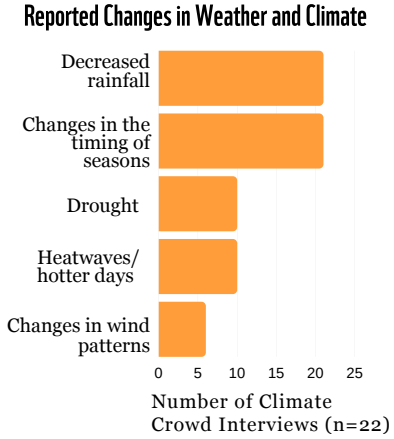
Madagascar

Ankoba is a small farming and fishing village bordering a marine protected area on the coast of western Madagascar

PURPOSE

Create sustainable alternative livelihoods for coastal communities that build resilience to changing rainfall patterns and reduce pressure on fisheries.

LOCAL CLIMATE THREATS



Ankoba community members report the following impacts:

- Reduced abundance of fish
- Increased reliance on destructive fishing practices and equipment
- Crop failure due to insufficient or unreliable rainfall
- Reduced availability of freshwater
- Livelihood loss due to crop loss and fish declines

PROJECT DESIGN

With agricultural production declining due to drought, people are relying more heavily on fishing, placing greater pressure on already strained fisheries. This project establishes seaweed farming and beekeeping to help households diversify their income and lessen the burden on marine ecosystems. Seaweed farming will be primarily driven by local women, facilitating women's involvement in income-generating activities.

ACTIVITIES

- Identification of seaweed and beekeeping sites
- Training local communities on seaweed production and beekeeping techniques
- Purchase and installation of materials for seaweed and beekeeping production. Beekeeping requires recycled wooden boards to serve as frames, safety equipment to protect against bee stings, relief wax, stainless steel wire, and a queen grill. Seaweed farming requires buoys and rope of various sizes and lengths.
- Provide market access for the sale of products to the private sector

Did you know?

In addition to being a resilient source of income for coastal communities, seaweed farming has a number of environmental benefits. Seaweed can help mitigate climate change by storing carbon. It can also reduce local effects of ocean acidification and improve oxygen levels.

PROJECT OUTCOMES

- Increased household income from alternative livelihoods
- Reduced pressure on fisheries
- 32 households involved in beekeeping
- 42 households involved in seaweed farming
- Increased involvement of women in income-generating activities

Local women set up seaweed lines, which will help to supplement family incomes, store carbon, and filter phosphorus and nitrogen from ocean water

ENVIRONMENTAL EDUCATION FOR GRADE SCHOOL STUDENTS

Mexico

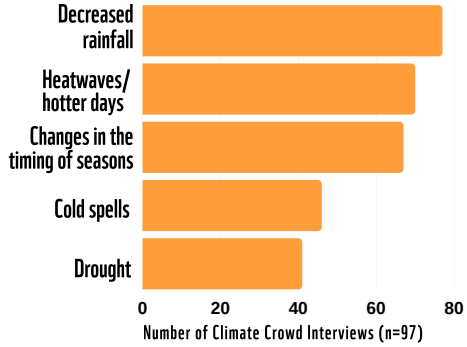
Puerto de Santa Rosa, a small community of 40 families, is located in the mountains of Guanajuato state.

PURPOSE

Educate students and community members on the impacts of climate change on agricultural systems.

LOCAL CLIMATE THREATS

Reported Changes in Weather and Climate



Community members from Puerto de Santa Rosa report the following impacts:

- Declining crop yields due to more extreme temperatures and infrequent rain
- Income loss from agricultural declines
- Reduced water availability
- Increased prevalence of pests and diseases affecting crops and natural vegetation
- Many people, particularly the younger generation, seeking off-farm employment or education, or migrating to cities or abroad.

ACTIVITIES

- Installation of a school garden and composting system: The garden will grow produce for students and families and serve as a site for environmental education activities.
- Collaboration with rangers at the nearby protected area: Stakeholders prepared materials and constructed a keyhole garden over the course of multiple weeks, planting seedlings in March.
- Work session at the primary school: Teachers, parents and students helped clear space for the garden and moved donated materials.
- Environmental education workshops: During sessions held twice a week, teachers instructed students on the basics of climate change and the role of plants as carbon sinks.

A new school garden is constructed for environmental education

PROJECT OUTCOMES

23 students instructed on the basics of climate change

1 new educational garden constructed, spanning 50 square ft dedicated to crop production and outdoor environmental education

A student's drawing shows how weather impacts tomato growth

PROJECT DESIGN

Facing declining rainfall, many community members in Puerto de Santa Rosa have stopped planting crops. Climate Crowd partnered with a Peace Corps volunteer for this project, to provide climate change education to a local primary school and a visitors' center. Through the environmental curriculum, students delved into topics ranging from climate impacts on agriculture to nutrient recycling. Hands-on learning opportunities provided students and community members with skills and insight into climate-resilient agricultural practices during intensifying dry spells.

Students learn about climate change adaptation from new environmental curriculum

TEACHING STUDENTS HOW TO IMPLEMENT ADAPTATION PROJECTS

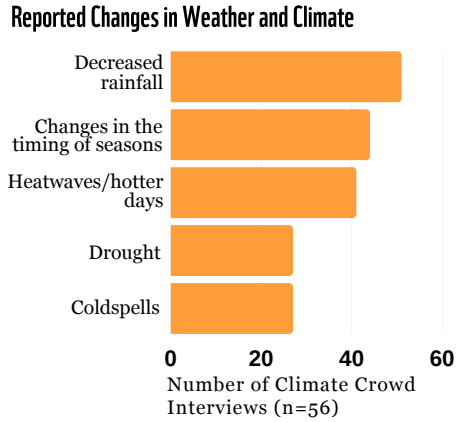
Mexico

Santa Lucia is a small community of 700 people located outside of Mexico City in the state of Querétaro.

PURPOSE

Increase community resilence to climate change through capacity building and climate education.

LOCAL CLIMATE THREATS



Community members from Santa Lucia report the following impacts:

- Water sources drying up
- Corn, the staple crop, no longer growing due to changing rainfall patterns
- Increase in pest prevalence, affecting agricultural productivity
- Increased use of pesticides, herbicides, and fertilizers to combat crop declines
- Fruit trees no longer producing

PROJECT DESIGN

Facing temperature extremes, erratic rainfall, and pests, families in Santa Lucia need locally-led adaptation interventions that reduce their vulnerability to climate change. Through this project, a local Peace Corps volunteer and teachers from a nearby school worked together to develop a curriculum and instruct middle and high school students and the broader community on climate science and how to develop interventions that boost local resilience to the effects of climate change. The project aimed to help the youth of Santa Lucia in project planning and management while exposing them to local environmental issues. Students learned how to implement adaptation projects, such as small-scale greenhouses and xeriscaped gardens, to give them practical tools for creating more climate-resilient communities.

ACTIVITIES

- Workshops: Project leaders instructed three groups of middle school students and one group of high school students on the basics of climate science and impacts. Instruction was also provided on how to plan and execute local adaptation projects.
- Homework: Students wrote reports on their respective projects, sourced project materials from their homes and communities like bottles, rope, etc. and made “eco-bricks.”
- Pilot projects at the school: Students helped construct hoop gardens, xeriscaped gardens, and eco benches.
  - Hoop gardens are a small-scale and inexpensive type of greenhouse. They use PVC tubing or rods and greenhouse film to cover garden beds, which helps protect plants from freezing temperatures, heavy rainfall, and insects.
  - Xeriscape gardening is a type of landscaping technique suitable for arid climates that uses rocks and plants that require minimal water to survive.
  - Eco-benches were built using “eco-bricks” made of plastic bottles filled with non-recyclable or non-compostable refuse from homes, schools and public spaces.
- Pilot projects in communities: upon completion of hoop garden at the school, six teams of high school students led the construction of hoop gardens in their respective communities

Students constructing a hoop-garden

PROJECT OUTCOMES

4 hoop gardens built at the school and 6 built by students in their respective communities using skills learned during lectures & school activities

3 eco-benches and 1 xeriscape garden constructed on school grounds

155 students (79 girls, 76 boys) participated in lectures on climate change and project planning and implementation

BUILDING FOG CATCHERS & ARTIFICIAL WATERWAYS

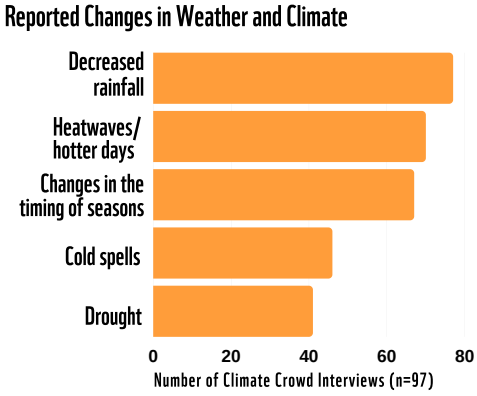
Mexico

Santa Maria Yucuhiti is an indigenous community in the mountains of Oaxaca, the most biodiverse state in the country.

PURPOSE

Reduce the impacts of drought and frost on community agricultural systems.

LOCAL CLIMATE THREATS



Community members from Santa Maria Yucuhiti report the following impacts:

- Declining crop yields due to intensifying frosts and drought
- Relocation of crops to the forest edge, where they are protected from cold winds
- Deforestation due to slash-and-burn agricultural techniques near forests

PROJECT DESIGN

Farmers in Santa Maria Yucahiti were sowing crops on the edge of nearby forests, which offered protection from worsening drought and cold snaps that had decimated crops in recent years. However, the use of "slash and burn" farming near forests resulted in two fires that went out of control, damaging close to 40 acres of primary forest. To improve crop survival and reduce adverse impacts on forests, WWF funded an innovative project in partnership with Espacio de Encuentro de Culturas Orinarias (EECO), a local NGO, to install fog catchers and artificial water channels surrounding crops. Fog catchers collect water from the atmosphere during periods of drought and feed into the water channels, which in turn, create a micro-climate that reduces frost-related crop damage and maintains soil moisture.

ACTIVITIES

- Stakeholder consultation: Introductory meetings were held with local indigenous authorities to present the project and collect baseline information (land use maps, soil type, agriculture techniques used, crop type, production and productivity).
- Site selection: Treatment and control plots were selected based on suitability of the land, willingness of owners to participate, and suggestions made by municipal authorities.
- Technical design: Fog catchers and water channel systems were designed based on consultations with experts in soil health, agriculture and engineering.
- Fog catcher installation: EECO conducted a workshop with selected farmers to introduce the project, provide training on installing fog catchers, and complete installation.
- Water channel construction: A second workshop was held on water channel construction.
- Monitoring and evaluation: EECO monitored the functioning of water channels and fog catchers and compared crop survival in treatment plots to control plots.

PROJECT OUTCOMES

Four fog catchers and ten artifical waterways constructed

20 volunteers from the local community trained on fog catcher and water channel construction

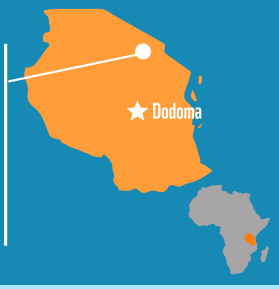
95% plant survival rate on treated plots, compared to just 25% on control plots

Fog catchers collect and transfer water to water troughs

CONSERVATION AGRICULTURE FOR IMPROVED SOIL HEALTH

Tanzania

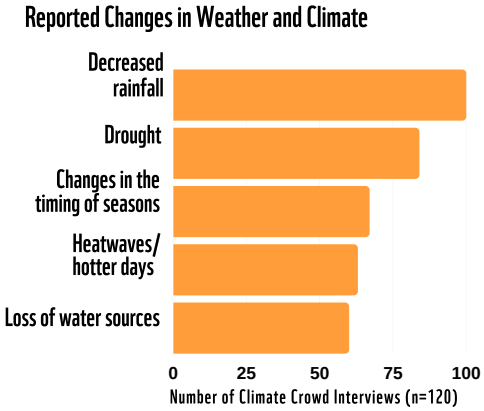
Kilimatembo is a small village located in the highlands of Karatu District in northwest Tanzania's Ngorongoro Conservation Area.



PURPOSE

Reduce the vulnerability of rural farmers to drought and soil degradation.

LOCAL CLIMATE THREATS



Community members from Kilimatembo report the following impacts:

- Declining crop yields from soil degradation and drought
- Increased soil erosion from erratic rainfall
- Food insecurity and livelihood loss from crop declines
- Declining livestock health from drought and predation
- Increase in competition between humans, livestock, and wildlife for limited water resources

PROJECT DESIGN

In partnership with the Karatu District Council and School for Field Studies, this project aimed to promote the conservation of soil and water in smallholder farms in the Karatu District highlands through (i) controlling surface water runoff using contours/terraces, and (ii) planting trees and grasses to stabilize the contour bunds. Both of these approaches were intended to reduce soil erosion by trapping silt and increasing water infiltration in the farms. Elephant grasses with dense root networks and agroforestry tree species commonly grown in the area were planted along the contour bunds for soil stabilization.

ACTIVITIES

- Village consultation meetings and site selection: 100 farmers were identified to participate in the project.
- Purchase and distribution of equipment
- Training of sub-villages teams: project partners trained participating farmers on constructing terraces and contour bunds.
- Planting of vegetation: a total of 9700 seedlings of tree species and 10 lorry trips of elephant grasses were distributed to farmers. An additional 3700 seedlings were supplied by the Ngorongoro Conservation Area.
- Continued monitoring of project site.

PROJECT OUTCOMES

Ground contouring established on 65 farms spanning 199 acres of land

9,700 seedlings of various tree species planted

Community members assess project site

Contour/terrace construction on a farm

Training session for project participants

Constructed terraces will decrease soil erosion and water run-off

RAINWATER HARVESTING SYSTEMS FOR PRIMARY SCHOOL STUDENTS

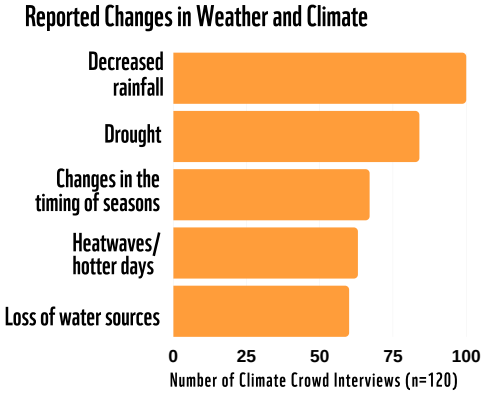
Tanzania

Idunda is a small village located in the Njombe region. The village faces increasingly unpredictable rainfall.

PURPOSE

Improve water security and hygiene at Itanana Primary School.

LOCAL CLIMATE THREATS



Community members from Idunda report the following impacts:

- Limited water sources for students and community members
- Difficulty farming due to unpredictable rainfall
- Movement of crop cultivation to areas with greater water access

PROJECT DESIGN

The village of Idunda is experiencing increasingly unpredictable rainfall, placing greater strain on the village's only groundwater outlet, which serves over half of Idunda residents. To improve local water security and hygiene, a local Peace Corps volunteer teamed up with teachers, students and families from the community to construct a rain capture and storage system and new hand washing station at Idunda's primary school. The rain catchment system diverts roof runoff to a water storage tank and any overflow to an infiltration pond to minimize soil erosion and replenish groundwater. The stored water is piped to the hand washing station located between the bathrooms and classrooms such that students can conveniently wash their hands before returning to class. Following construction and installation, teachers led a School Water Day, during which students participated in hands-on activities to learn about climate change, water conservation, and appropriate use of water for personal health and hygiene.

ACTIVITIES

- Initial project planning and design
- Digging of waterline trenches and preparation of infiltration pond
- Purchase and transport of construction materials
- Installation of rainwater gutters
- Construction of hand washing station
- Training of teachers and implementation of Itanana School "Water Day"
- Training of students on proper hand washing, rainwater harvesting, water sanitation, water conservation, and climate change

PROJECT OUTCOMES

260 feet of of rain harvesting gutters installed

6-faucet hand washing station constructed at school

46 boys and 36 girls with improved access to handwashing and knowledge of water issues

Students test out the new handwashing station

Students during Itanana's school-wide Water Day

Itanana Primary School students

PROTECTING WATER RESOURCES THROUGH COMMUNITY ACTION

Uganda

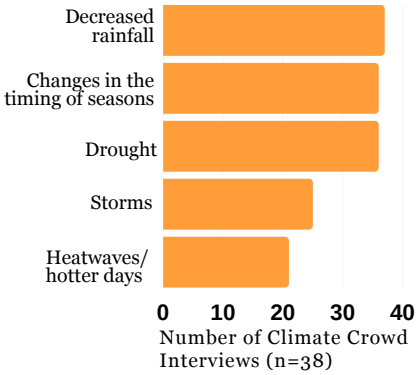
Kihigwa is a rural village near the city of Hoima, in western Uganda.

PURPOSE

Protect water resources affected by drought and storm run-off.

LOCAL CLIMATE THREATS

Reported Changes in Weather and Climate



Kihigwa community members report the following impacts:

- Contaminated water sources from worsening storm run-off
- Increased prevalence of water-borne diseases
- Decreased water availability due to extreme drought
- Increased time spent collecting water
- Livelihood loss due to crop declines and poor livestock health

PROJECT DESIGN

Through a participatory rural appraisal, community mapping and development of seasonal calendars, the community of Kihigwa, with the help of a local Peace Corps volunteer, identified water insecurity as a critical climate change impact affecting community members. This project set out to repair existing wells and implement measures to protect four open springs from evaporation during droughts and contamination from increased storm runoff. The project also helps address other challenges identified by the community, including health issues, agricultural output and gender equity. Improvement of water resources will reduce water-borne illness, provide water for farm irrigation, and reduce the amount of time spent collecting and purifying water, a responsibility primarily shouldered by women.

ACTIVITIES

- Community Action Planning: Following a participatory appraisal, community members and project facilitators wrote a community action plan (CAP) for project implementation.
- Surveying of water resources: Water resource engineers surveyed fourteen water sources to determine usage rates - and technical feasibility. Only those that benefited the community most were selected for repair.
- Water source committees: users of each water source met to establish management plans, including a system of fee collection to fund future repairs
- Improvement of water resources: Project facilitators developed plans to move agricultural activities away from water sources, build protective barriers around wells, plant native trees and shrubs to reduce sedimentation, and remove contaminants.

Surveying a contaminated open water source to determine repair methods

Repaired well

PROJECT OUTCOMES

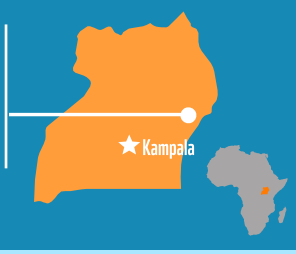
- 4 newly protected water sources
- Community Action Plans (CAPS) developed for future resource protection
- Water committees and fee collection systems established
- 33 women and 54 men involved in project planning and implementation

Community members fetch water from newly restored water source

BUILDING RAINWATER HARVESTING TANKS WITH RECYCLED BOTTLES

Uganda

Mbale is a small city located at the base of Mt. Elgon in Eastern Uganda

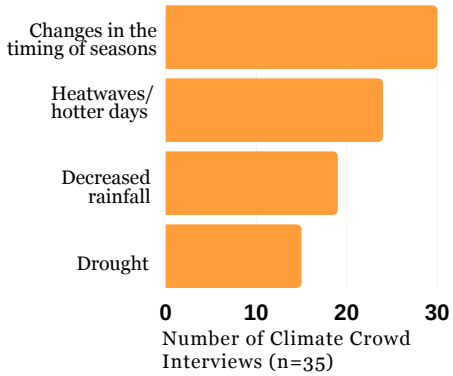


PURPOSE

Combat local water insecurity and facilitate community plastic recycling and clean-up.

LOCAL CLIMATE THREATS

Reported Changes in Weather and Climate



Community members from Mbale report the following impacts:

- Increasing water scarcity from severe drought
- Declining crop yields due to changing rainfall patterns and pests
- Insufficient grass for livestock due to dry conditions
- Increase in water and vector-borne diseases such as typhoid, cholera, malaria, and yellow fever

PROJECT DESIGN

According to interviews with Mbale residents, rainfall is no longer consistent and has led to widespread water insecurity with severe consequences for farmers. Designed and led by former Peace Corps volunteer Michal Matejczuk, the Ichupa Upcycle project uses discarded plastic bottles collected from the community as raw material for constructing rainwater harvesting systems that can store water for use during dry spells. The project also contributes to local capacity-building by bringing together different project beneficiaries, designing solutions, sourcing funding, procuring plastic bottles, and ensure the timely completion of all activites.

The Ichupa Upcycle Project is in the process of becoming a registered community-based organization.

ACTIVITIES

- Identification of tank locations: Sites were chosen based on need, access, and security.
- Preparation of construction sites: Stakeholders cleared sites of weeds and debris, leveled off the land where necessary, and built bases to support the tanks.
- Procurement and preparation of plastic bottles: Project partners held a community clean-up day to gather plastic bottles. Children from a local school helped pack bottles with dirt, small pebbles and plastic.
- Tank construction: for each tank, bottles were arranged in a circle with the caps facing outward. Cement was applied between bottles and between each layer.
- Gutter installation: Once tanks were completed, gutters were added to nearby buildings and attached to the tanks.

Plastic bottles being used as bricks for the water tank

Completed tanks made from recycled plastic bottles

PROJECT OUTCOMES

- 9 rainwater catchment tanks constructed with a holding capacity of more than 11,000 gallons of rainwater
- Over 30,000 discarded plastic bottles collected and recycled
- 140 men and women participated in project activities
- Improved community access to water throughout the year

Plastic bottles filled with dirt

BETTER IRRIGATION SYSTEMS TO ADDRESS UNPREDICTABLE RAINFALL

Uganda

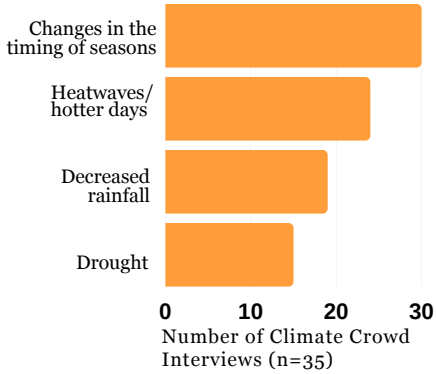
Nakesero is a farming community in Eastern Uganda's Mayuge district.

PURPOSE

Protect local farms and agriculture against extreme drought, heatwaves, and soil erosion.

LOCAL CLIMATE THREATS

Reported Changes in Weather and Climate



Community members from Mayuge report the following impacts:

- Declining crop yields from erratic rainfall
- Loss of livelihoods from poor agricultural productivity
- Water insecurity from lack of rainfall or rainfall storage capacity
- Increased soil erosion from drought followed by extreme rainfall

PROJECT DESIGN

In recent years, Mayuge district residents have experienced long periods of drought and excessive heat, punctuated by extreme rainfall and accompanying soil erosion. These changes have had devastating effects in a society where nearly 90% of people make a living through rain-fed agriculture. In response to water insecurity and poor crop yields, WWF teamed up with a Peace Corps volunteer, Sam Strimling, to support a community-wide effort to construct a much-needed irrigation system to support local farms. This project provided the community with the materials and training needed to build underground storage tanks to collect and filter runoff during heavy rainfall, and store it safely for use during prolonged dry spells.

ACTIVITIES

- Irrigation site selection: The initial construction site was chosen based on proven need and collective farming capacity.
- Construction of irrigation system: Nearly 200 community members worked to construct an irrigation system consisting of a large water storage tank, an attached smaller tank for filtering sediment, a pipe used to capture run-off from the existing borehole, a gas-powered water pump, and a 150-meter hose to distribute water to the crops.
- Knowledge-sharing: Project partners invited community members from nearby regional zones to observe and participate in irrigation system construction to encourage widespread adoption.

PROJECT OUTCOMES

- One 14,000 gallon water storage tank and associated filtration and transport system
- 2 acres of community farmland irrigated
- 100+ community members trained and participated in irrigation construction
- Crops including pumpkins and passion fruit successfully grown during the dry season, thereby fetching a higher price

Mixing concrete for construction of the storage tank

Laying bricks for construction of the storage tank

IMPROVING WATER SECURITY & REDUCING DEFORESTATION

Zimbabwe

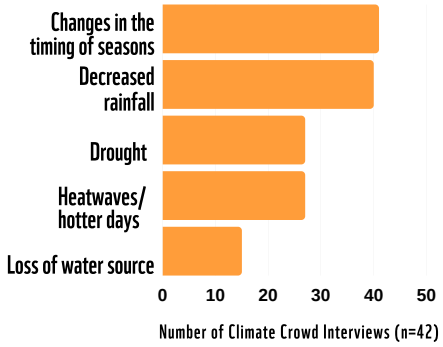
Hwange District is located near Victoria Falls and lies within the Kavango Zambezi (KAZA) Transfrontier Conservation Area.

PURPOSE

Support community water and food security during prolonged drought, and combat widespread deforestation.

LOCAL CLIMATE THREATS

Reported Changes in Weather and Climate



Community members from the Hwange District report the following impacts:

- Widespread water insecurity
- Crop loss from prolonged drought and increasing pest prevalence
- Increased human-wildlife conflicts, particularly involving elephants
- Poor livestock health due to sparse and degraded grazing area and less water
- Increased reliance on resource-intensive livelihoods due to farming losses from drought

ACTIVITIES

- Installation of a rainwater harvesting system at a local primary school. Community members were trained in system maintenance and management.
- Upgrading of a hand-pump borehole to a solar-powered pump.
- Installation of drip irrigation.
- Installation of an automated weather station connected to the National Meteorological Authority in Zimbabwe.
- Provision of fuel-efficient cookstoves to reduce firewood collection.

Did you know?

As climate change intensifies, access to accurate weather information is vital to ensuring food security. With shifting seasonal, temperature and rainfall patterns, automated weather stations allow farmers to better plan planting and harvesting dates. So far, Climate Crowd has installed automated weather stations in 8 countries, providing farmers and local wildlife authorities with reliable weather information.

PROJECT OUTCOMES

- Rainwater harvesting system installed with 5,000 liter capacity
- One borehole pump upgraded to solar power
- Drip irrigation installed in a community garden
- 15 clean cookstoves installed
- Automated weather station installed

PROJECT DESIGN

In Hwange district, a shift to hotter, drier conditions has decimated crops and livestock, and reduced access to freshwater. Some have found alternative sources of income through brick-making and wood carving, placing greater pressure on local forests. In partnership with Greenline Africa, a local NGO, this project improves water security by installing a rainwater harvesting system, upgrading a borehole pump to solar power, and installing improved irrigation, and reduces pressure on forests through installation of clean cookstoves. Additionally, the project set a goal of 60/40 female to male participation, established a women's cooperative to help scale up project activities, and is monitoring changes in time spent collecting water (currently 2-3hrs), a responsibility primarily shouldered by women.

Installing drip irrigation

Want to learn more?

Visit the Climate Crowd website to explore and download interview data, view project pages, and read more summary reports like this on our publications page.

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