



## **Adaptation 101:**

How climate change hurts poor communities—and how we can help

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**Cover:** Srey Sap Sakin squats among her rice seedlings in the village of Thmey, Cambodia. "Because of the drought in the beginning of the wet season, I was not able to transplant my rice seedlings and lost everything to the unpredictable weather," she says. *Jack Picone / Oxfam*

“Let us recognize that the effects of climate change affect us all. And that they have become so severe and so sweeping that only urgent, global action will do. We are all in this together. We must work together.”

UN Secretary General Ban Ki-moon | Nov. 17, 2007

# The human impact of climate change

Over the course of hundreds of years, poor people have developed ways of coping with changing weather conditions. When torrential rains drench the flood plains surrounding the Mekong River, rice farmers turn to fishing instead.<sup>1</sup> When rainfall levels fall in the Sahel, farmers cultivate drought-resistant crops like millet and black-eyed peas.<sup>2</sup> And where water is always hard to come by in the dry, mountainous areas of the Middle East, local people use traditional, though labor-intensive, techniques to harvest water from the canyons, valleys, and slopes.<sup>3</sup>

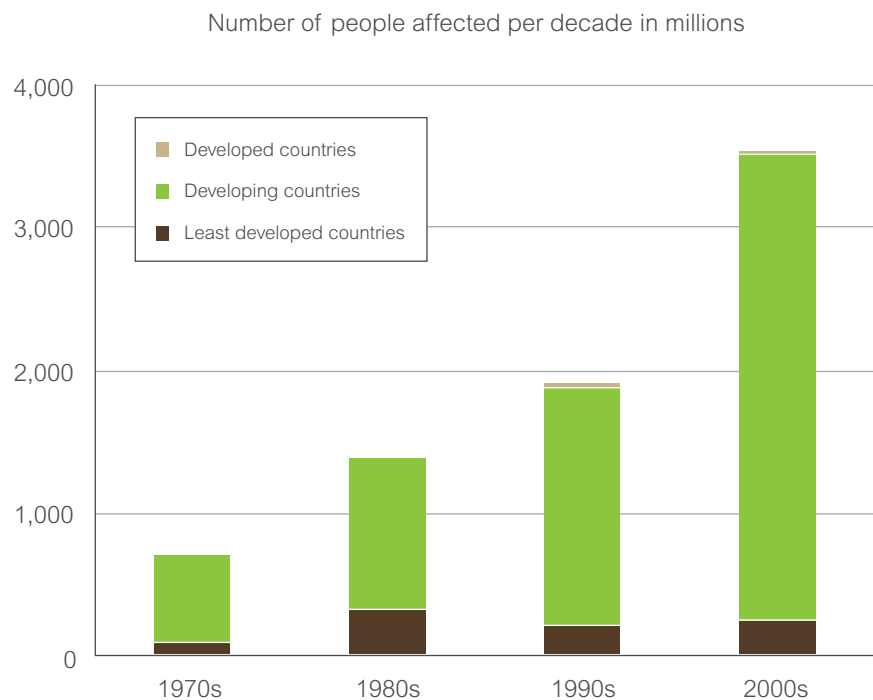
Each season is slightly different than the previous one, but having anticipated the changing conditions, generation after generation learns to adapt.

But what happens when the seasons become less predictable and the conditions more difficult to manage? What happens when human activities, like burning coal, oil, and natural gas, change the climate—not just for a season, but for the long-term? Then, lacking the information or resources necessary to understand, prepare for, and respond to increased hazards, many of the world’s poorest communities experience unprecedented stress.

**Figure 1.**  
**Climate change hurts poor people worst and first**

People living in developing countries are more than 20 times as likely to be affected by climate-related disasters as people in the developed world. At the same time, they are least able to cope with these disasters.<sup>4</sup>

Figure source: Ian Noble, World Bank



A woman harvests potatoes in Chongoene, Limpopo Valley, Mozambique. To combat increasing climate change-related drought, Oxfam and local partner organizations are helping the community plant smaller gardens and diversify their crops. *Joel Chiziane / Oxfam*



Since developing countries already grapple with environmental and economic pressures, they are more vulnerable to climate change and its consequences. Climate-related disasters not only disrupt livelihoods, they also undo years of development and impede growth. In Ethiopia, for example, fluctuations in the country's gross domestic product follow fluctuations in rainfall.<sup>5</sup>

Complicating things further, the impacts of climate change are occurring faster than scientists first predicted.<sup>6</sup> In the last two decades alone, the total number of disasters—mostly floods, cyclones, and storms—quadrupled. Over the same period the number of people affected by disasters increased from around 174 million to an average of more than 250 million a year.<sup>7</sup>

Predictions for future impacts—and collateral effects—are even worse. Developing countries are facing growing water shortages, with more than one billion people likely to face inadequate water supplies by midcentury.<sup>8</sup> In some African countries, yields from rain-fed crops could be cut in half by 2020.<sup>9</sup> And water scarcity, combined with extreme weather events and rising temperatures, will lead to increased food shortages and spikes in diseases like dysentery and malaria.<sup>10</sup>

## Stop harming, start helping

At Oxfam America, we believe creating solutions to poverty means creating equitable solutions to the climate crisis. We have spent more than three decades helping poor people earn a better living, strengthen laws that protect their rights, provide educational opportunities, and respond to disasters. But climate change undermines all of this work. This is why we are advocating for a truly comprehensive response to global warming, one that not only addresses the cause of climate change but also responds to the needs of the poorest communities.

As the largest economy in the world, as well as the biggest historical producer of greenhouse gas emissions, the US has both the resources and the responsibility to respond.<sup>11</sup> The US must stop harming vulnerable communities by dramatically reducing its emissions. This would help prevent a temperature rise of 3.6° Fahrenheit (2° Celsius), the point at which the world will experience dangerous shocks to its water resources, food production, sea levels, and ecosystems.<sup>12</sup>

Reducing emissions, though, won't be enough. Even if the world stopped polluting today, we would still feel the effects of climate change for decades to come.<sup>13</sup> And while all of us will be affected, developing countries will bear the brunt of the impacts, according to scientists on the Nobel Peace Prize-winning Intergovernmental Panel on Climate Change.<sup>14</sup>

It's critical that the US act now. It must start helping by providing developing countries with the resources they need to cope with the serious impacts of climate change. With this funding, they can adopt innovative ways of dealing with the climate crisis. For example, in Bangladesh, villagers are already creating floating vegetable gardens to protect their livelihoods from ruin by floods.<sup>15</sup> In Vietnam, communities are planting dense mangroves along the coast to diffuse the waves caused by tropical storms.<sup>16</sup> In Peru, people have revived an ancient canalization technique designed to provide moisture to farms during drought and drainage during heavy rains.<sup>17</sup> And in Uganda, communities are using the radio and Internet to share early warning and climate information at the local level.<sup>18</sup>

In other words, given the proper resources, these communities can not only reduce their vulnerabilities but also build up their resilience.

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## Compelling reasons for the US to help

- **The US should provide funding for adaptation because it would demonstrate global leadership.** The US can improve its standing in the world community by showing that it is willing to take responsibility for the consequences of its greenhouse gas emissions. This becomes particularly important as the US begins to re-engage in international negotiations on climate change.
- **The US should provide funding for adaptation because it would help safeguard global security.** As populations increase in some of the world's poorest countries, a harsher climate can lead to migration; refugee crises; and conflicts over scarce natural resources, including land and water.<sup>19</sup> Long-term economic destabilization in developing countries can also further undermine stability and security. In this way, climate change acts as a “threat multiplier” in some of the most volatile regions of the world.<sup>20</sup>
- **The US should provide funding for adaptation because responding now would save money down the road.** The US should act now to address climate change and its impacts because it will be much more expensive to deal with the consequences later on. Dramatically reducing emissions will reduce the severity of climate change. And funding adaptation efforts such as improved agricultural techniques or preparedness training for severe weather events will cut down on the money needed to provide hunger relief or rebuild communities.
- **The US should provide funding for adaptation because climate change brings with it the spread of hunger and disease.** The collateral effects of climate change can be seen in spikes in food shortages and in diseases like dysentery and malaria. According to the World Health Organization, climate change may already contribute to more than 150,000 deaths a year.<sup>21</sup>
- **The US should provide funding for adaptation because promoting economic development in developing countries should be a national priority.** Through no fault of their own, people in developing countries are more than 20 times as likely to be affected by climate-related disasters as those in the developed world.<sup>22</sup> Women are particularly vulnerable because they often depend on rainfall (instead of irrigation) to water their crops; they are typically responsible for providing their household's water, food, and fuel supply; and they are less likely to have the education, opportunities, and resources they need to adapt to the impacts of climate change. By providing assistance for adaptation efforts, the US can help strengthen communities—in the face of climate change *and* poverty.

# What do developing countries need?

A major economic review of climate change—known as the “Stern Review”—projects that the future costs of climate change under a “business as usual” scenario could equal the loss of 5 to 20 percent of gross world product annually. In contrast, the costs of taking action now to address climate change will likely be several orders of magnitude below the costs of inaction.<sup>23</sup>

Taking action today means that industrialized nations must dramatically begin reducing emissions, but they must also invest in adaptation as part of a comprehensive approach to addressing the climate crisis. Whether as an extension of existing development work or to put in place new approaches for climate responses, poor countries need a commitment of funds from developed countries that is new and separate from what’s already been made available for traditional international development assistance and humanitarian aid.

So, just how much will adaptation cost? The Human Development Report of 2007–08, commissioned by the UN Development Program (UNDP), estimated the total adaptation needs of developing countries at \$86 billion each year. Of the \$86 billion, an estimated \$44 billion is required just for making infrastructure and other investments “climate-proof,” while another \$40 billion is needed to adapt development programs to address climate impacts. The UNDP recommends an additional \$2 billion every year for disaster responses so that traditional development aid is not diverted to address climate-related weather events.<sup>24</sup>

## Comparing the costs

The good news is that the US can neutralize the real and immediate risks that climate change brings for far less money than it takes to support other vital programs. Current US spending on poverty-focused international assistance, for example, accounts only for about 1 percent of the federal budget.<sup>25</sup> In comparison, 19 percent is spent on defense, while 8 percent is spent paying interest on the federal debt.<sup>26</sup> The irony is that by providing adaptation funding, the US might actually help reduce the incidence of conflict and instability, which could, down the line, justify a smaller defense budget.

In the face of a global crisis like climate change, the US can do better. Along with its partners in the rest of the developed world, like Germany, France, and Australia, the US has the ability to take on this unprecedented challenge and to respond to a growing international problem—one it is largely responsible for generating.

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Community projects	Price tag
A pilot project raises the foundations of 600 flood-prone mud houses in India.	<b>\$70 per house</b>
Farmers facing both droughts and floods in Nicaragua practice conservation agriculture, tree planting, and water management. The project aims to benefit 2,000 farming households.	<b>\$250,000</b>
A community project in Bangladesh aims to establish more flood-resilient livelihood strategies, stockpile food in flood-proof storage, harvest rainwater, and create floating vegetable gardens in waterlogged areas. The project benefits 7,500 households.	<b>\$2.5 million</b>
Communities in Vietnam plant 54,363 acres of mangroves, providing 62 miles of protection for sea and river dikes to benefit 1.2 million people in the area.	<b>\$5 million</b>
Country programs	Price tag
A project of the Philippines supports strategies such as early warning systems, ecosystem vulnerability assessments, capacity expansion of river basins, and protection of food security by improving dry cultivation and crop resiliency.	<b>\$55 million</b>
An arid lands project in Kenya employs a comprehensive climate risk-management approach by supporting community initiatives, improving information sharing at the national and subnational level, and integrating long-term risks into district-level planning. The project also focuses on creating opportunities for economic diversification and creating alternative ways of earning a living.	<b>\$51.6 million</b>
A project to support the Pacific Islands' adaptation to climate change implements a programmatic approach to strengthen resource conservation and promote sustainable development.	<b>\$82.4 million</b>

### Figure 2. What can adaptation funding buy?

On a project-by-project basis, individual adaptation strategies can vary widely in cost, from as little as \$70 to as much as \$82.4 million. Sometimes the funds support small, community-based projects. Other times, they support national or regional programs.

Figure sources: "Adapting to Climate Change: What's Needed in Poor Countries, and Who Should Pay" (Oxford, UK: Oxfam International, 2007), Oxfam Briefing Paper; Global Environment Facility, [www.gefweb.org](http://www.gefweb.org).

# How is the US responding?

More and more, the international community has recognized that the needs of developing countries can no longer be ignored. Conflicts involving increasingly scarce natural resources, including water, can contribute to broad social instability around the world.<sup>27</sup>

But the resources devoted to international adaptation efforts all fall short of the substantial needs for adaptation funds. And so far, the US has done little to address the significant and growing adaptation needs of poor countries—even when other countries have acted to provide some amount of adaptation assistance.

Some developed country governments have contributed a total of \$116 million to a voluntary set of funds at the Global Environment Facility (GEF).<sup>28</sup> And the countries that belong to the Kyoto Protocol, an international agreement on global warming, have created an international Adaptation Fund that will likely receive a few hundred million dollars a year in proceeds from an international mechanism for trading greenhouse gas emission credits.<sup>29</sup>

But the US has failed to contribute a single dollar to the countries and communities most in need through international funding mechanisms such as the GEF.<sup>30</sup> In addition, the US does not belong to the Kyoto Protocol and has said it will not participate in the Adaptation Fund. Although the US Agency for International Development has begun to engage in adaptation efforts, it has done so only with limited and uncertain amounts of funding.<sup>31</sup>

## Effective US engagement

The US has some important opportunities coming up. It can play a leadership role on adaptation funding issues—both through international negotiations and in Congress. Countries are now negotiating a new international climate change agreement that will build on past agreements, like the Kyoto Protocol, to reduce greenhouse gas emissions while also developing a plan for climate adaptation in developing countries. The US is part of these negotiations, and all parties, representing both developed and developing nations, expect to reach an agreement by 2009 that would go into effect in 2012.

The participating countries have already agreed that this new global agreement must include substantial new and additional resources and innovative funding mechanisms to meet adaptation needs.

During the next two years of negotiation, the US can demonstrate global leadership while also helping to bring international negotiations to completion—by providing developing countries with the funding needed for adaptation efforts. This funding should help provide vulnerable communities with the resources to implement adaptation projects, including training and technology such as drought-resistant seeds that will be essential to successful efforts to build resilience.

The US can demonstrate global leadership while also helping to bring international negotiations to completion—by providing developing countries with the funding needed for adaptation efforts.

## Taking action in Congress

Congress has an opportunity to take an essential step forward in making significant funds available to vulnerable developing countries through US climate change legislation. A variety of policy options could be used to provide funding and assist communities around the world.

Many of the leading legislative proposals for addressing climate change would cap greenhouse gas emissions and provide industry and utilities with permits for emissions. These permits can then be traded among companies. If Congress requires companies to buy those emission permits rather than giving them away, the revenue generated from these sales of permits can be used to meet a number of public needs. A significant portion of the funds should be set aside to assist those countries and communities that are most vulnerable to the serious impacts of climate change.

The costs of adaptation can also be funded through other revenue-generating policies, like carbon fees and taxes on major industries and utilities, or by shifting subsidies and tax breaks away from fossil fuel energy to adaptation funding.

A significant portion of the revenue from emission permits should assist those countries and communities most vulnerable to the serious impacts of climate change.

## Using adaptation resources wisely

While adequate funding is essential, it is not enough simply to have resources available. It is vital that funds for building resilience to climate change in developing countries are used effectively and fairly. US government agencies, and any international funding mechanisms through which the US channels funds, should be held accountable for the way in which they implement adaptation programs.

<b>Accountability</b>	Governments and international agencies must be held accountable for the fair and equitable distribution of adaptation resources.
<b>Transparency</b>	The decision-making process for how adaptation funds are managed and allocated must be transparent and involve local communities.
<b>Community engagement</b>	Local communities, who already have the indigenous knowledge necessary to build resiliency, must be at the center of designing and implementing effective adaptation strategies.
<b>Capacity building</b>	Adaptation funding must support development goals, such as improving livelihoods and human health. This funding must also enhance institutional systems so that communities have the knowledge and capacity to respond effectively to impacts.
<b>Effectiveness</b>	Good adaptation projects and programs must be ones that can be monitored and evaluated in terms of their success at the community level.



## How businesses can help

Businesses have begun to recognize their responsibility to invest in climate change solutions, and some are taking action by setting up plans to reduce their own greenhouse gas emissions. However, reducing emissions is only part of the solution. The private sector could play a powerful role in providing solutions that enable poor communities to adapt to the impacts of climate change. Just as communities must build resiliency to protect their homes and their families from unpredictable climate events, companies must prepare for new risks to their global supply chains. Extreme weather events like droughts and floods, for example, can damage crops and transportation routes. Businesses could help support local adaptation efforts in vulnerable areas while also protecting their own future success.

In addition, some companies see new business opportunities in investing in adaptation. Oxfam America is partnering with multinational insurance companies to provide insurance products to small-scale farmers in Ethiopia, where 85 percent of the population is dependent on smallholder, rain-fed agriculture.<sup>32</sup> As rainfall patterns have become more unpredictable, some farmers have resorted to selling off their land in order to cope. Insurance providers can help these communities by offering certain incentives that help reduce risk, such as reductions in premiums or money for investment in the dissemination of drought-resistant seeds. Some insurance companies are supporting these types of innovative solutions because they feel obligated to respond. But many also see the potential for expanding their businesses. The ideal scenario creates a win-win solution for everybody; more local people are able to afford insurance down the line, enabling farmers to hold onto their land and companies to access new markets.

Manuel Grant has walked 37 miles to buy the charred bark, or charcoal, to sell at the market in Blantyre, Malawi. There is so much deforestation in the area that traders are having to travel further to find wood. In an effort to curb carbon emissions, the Malawian government has given the army the duty of stopping illegal logging in the country's forest reserves. This policy helps people like Grant and also curbs greenhouse gas emissions.

*Abbie Traylor-Smith / Oxfam*

US businesses can also help promote economic development and strengthen local communities by providing new technologies such as community-level solar or microhydropower energy systems.

# What does adaptation look like?

Adaptation needs will vary based on the conditions faced by different communities. Some might need to improve existing drinking water systems to deal with saltwater intrusions. Others might want to reinforce existing infrastructure, such as schools and health clinics, to prepare for flood events. Still others might invest in new infrastructure, such as food storage facilities, to cope with plummeting agricultural yields. Beyond all this, communities around the world will need money to improve their ability to develop disaster preparedness and response plans. And they will need to put in place better water systems and strengthen access to health care for climate-related diseases such as malaria.

No one solution or approach will work for everyone. In all countries facing the impacts of climate change, the key is to build resilience at the community level; communities must be able to respond and adapt to the shifting and frequently unexpected conditions that climate change brings. Climate change adaptation will be essential in a few key areas:

- Addressing water scarcity that jeopardizes safe drinking water and agriculture;
- Coping with excessive water, including from floods and sea-level rise;
- Reducing disaster risks from severe weather events;
- Improving agricultural practices and diversifying agricultural livelihoods;
- Improving health systems to address climate-related diseases and other health impacts;
- And addressing social impacts that stem from climate challenges, including migration and conflicts over natural resources.

Often, building resilience will mean enhancing existing development approaches, such as improving agricultural techniques or water supply systems. At other times, however, the challenges will be new and different. For instance, some communities will have to adapt to rapidly melting mountain glaciers—creating unprecedented floods now and leading to scarcer water supplies in future years once the glaciers are gone. Those communities will have to respond to these unfamiliar conditions by creating flood warning systems in the short term and changing the kinds of crops they grow in the long term.

To be most effective, the broad range of community adaptation efforts will have to be integrated into broader efforts to promote development and poverty reduction. For example, successful adaptation programs should promote better ways of earning a living and build stronger community institutions such as health clinics.

No one solution or approach will work for everyone. In all countries facing the impacts of climate change, the key is to build resilience at the community level.

# EXISTING ADAPTATION STRATEGIES AROUND THE WORLD

With the help of their own indigenous knowledge, local and national programs, and assistance from nongovernmental organizations (NGOs), poor communities are already adapting to a changing climate. Here's a look at some existing adaptation projects.

## 1. Nicaragua

Problem > **General impacts of climate change**

Solution > **The Red Cross conducts stakeholder seminars on climate change risks and works with teachers to integrate climate change impacts into school curricula.**

## 2. Peru

Problem > **Increased rainfall, droughts**

Solution > **The Waru Waru Restoration Project revived an ancient canalization technique designed to provide moisture to farms during drought and drainage during heavy rains.**

## 3. South Africa

Problem > **Human health issues**

Solution > **The Roll Back Malaria Initiative developed a monitoring and early warning system that uses climatic data to predict malaria outbreaks.**

## 4. Malawi

Problem > **Food security**

Solution > **A joint private-sector project helps farmers cope with uncertainty through an insurance program for droughts and loans for seed purchase.**

## 5. Uganda

Problem > **Droughts**

Solution > **The Karamoja Agropastoral Development Program provides women with crossbred goats and instruction in graze-free feeding to improve goat survival during droughts.**



Source: Heather McGray and others, "Weathering the Storm: Options for Framing Adaptation and Development" (Washington, D.C.: World Resources Institute, 2007)

Photo credits: David Vinales (p. 12 left), Evan Abramson (p. 12 right), Joel Chiziane (p. 13 left), Jane Beesley (p. 13 center and right)



6. Kenya

Problem > Food security

Solution > Small-scale farmers have developed a way to make low-cost sprinklers out of recycled materials, helping farmers protect their crops from droughts.

7. India

Problem > Droughts

Solution > Tarun Bharat Sangh (an NGO) has facilitated the construction of earthen check dams to retain monsoon water for times of drought.

8. Nepal

Problem > Floods

Solution > The government of Nepal reduced the water level in Tsho Rolpa Glacial Lake to prevent glacial lake outburst floods and instituted an early warning system for downstream villages.

9. Bangladesh

Problem > Soil erosion

Solution > Caritas' reforestation program reduces erosion and guarantees a standing stock of biomass that can be used in emergencies.

10. Laos

Problem > Increased rainfall

Solution > People living in the Mekong River flood plain switch from farming to fishing during the rainy season.

## ADAPTATION CASE STUDIES

Over generations, poor communities have learned ways to adapt to the variations in their weather—and Oxfam has helped. Though not originally designed to combat long-term climate change, these projects are good examples of what robust adaptation funding could help finance in the future.



### Preparing people to live with the floods in Bangladesh

Emergency measures, like raising homesteads, providing rescue boats, and instituting flood early warning systems, are helping people adapt

The people of Bangladesh are no strangers to floods. The country's low-lying landscape, coupled with its position in the Ganges Delta, means that it's always been susceptible—and that people have always had to cope with the consequences. But the weather of recent years has come as a shock to even them, and it is threatening their security, livelihoods, and lives.

"Twenty or 30 years ago, we could understand from the water temperature and the wind direction if the flood was going to come ... Before it was mostly monsoon flooding in July or August. But now the rains are continuing into October," says Laila Begum, who's been forced to move an incredible 25 times in her lifetime.

Begum is just one of the millions of Bangladeshis already hit by changes in the world's climate. For these people, increasing temperature does not mean long and pleasant summers, but an awful combination of rising sea levels, unpredictable rainfall patterns, and overflowing rivers caused by snow melting in the Himalayas.

"[That] causes problems, as it's [happening] when we should be planting our crops ... There are more storms, more thunder, and more lighting," explains Begum.

With Oxfam's support, some communities in Bangladesh have developed survival strategies. Emergency measures, like raising homesteads, providing rescue boats, and instituting flood early warning systems, are helping people adapt.

But this will need to be replicated on a massive scale for millions of people if changes in the climate become more severe.

A rise of an inch alone will submerge some areas—tragically, a rise of this level is already regarded as a certainty.

Despite what she's been through, Begum remains strong. "If my land comes up [out of the water], I will go back to it. Maybe we will be able to move next year or the year after. If this [land] erodes, we will move to another and begin again," she says.

▲  
A woman in Bangladesh floats down a flooded river on a collection of trash. In Bangladesh, where scientists have warned that a rise in sea level may flood 20 percent of the land, typhoons and floods have already increased in severity. *Jane Beesley / Oxfam*



## Cereal banks help Gambians weather hard times

By setting aside food and seeds, villagers have reserve to fall back on during shortages

Gambians have a saying about their baobab trees: “If you want to lean, make sure you lean on something strong to avoid being pushed down.” It’s a bit of wisdom that informs their approach to hard times, too. What it means is that with some support, people can help themselves overcome hardships.

That’s the idea behind a grant Oxfam has provided to help people in 51 villages in Gambia’s North Bank Division. Here, food shortages are a constant threat as people struggle to manage the delicate balance between their needs and what the environment can provide. Will there be enough rain to allow crops to grow? Will locusts devour whatever villagers manage to coax from their fields?

A simple solution promoted by Oxfam’s local partner, the Agency for the Development of Women and Children, or ADWAC, takes the edge off those questions: If villagers had a way to save some of their food and seeds

at the end of each harvest, they could have a reserve to fall back on during times of shortage. The trick was to get started.

ADWAC’s plan called for building and stocking four cereal “banks”—tidy white structures the size of small houses that can hold up to 33 tons of cereals—located at strategic points around the communities. Villagers then formed committees to manage the stored supplies. Those who borrow from the storehouses during a food shortage are obliged to repay the loan and tack on a little extra, too, so that the project can grow.

Now, if drought should shrivel their crops or pests consume them, villagers can turn to those banks of grain, avoiding the need to eke what they can from an overstrained environment. The banks will help them weather tough times.

“We experienced a very bitter time. The family was hungry,” said Nyima Filly Fofana, a mother of nine children

and an organizer for one of the cereal bank management committees. She was referring to a recent year when locusts and drought hit the area. In times of food shortages, Fofana’s family manages by selling the salt she harvests from mud flats near her home and by eating whatever vegetables they can grow in their garden. But if such trouble should strike again, this time her village, Dasilami, has the seeds of a solution—one that can now spread to other villages, too.

“Our worries will be temporarily solved,” says Fofana, clapping her hands at the thought of the Dasilami cereal bank. “We’ll have food. Therefore our families will not cry. Our stomachs will no longer go empty.”

▼  
Nyima Filly Fofana poses for a picture in a cereal bank built in the village of Dasilami, Gambia. Cereal storehouses stocked with corn and rice provide a cheap, available food supply in times of environmental or economic crisis. *Rebecca Blackwell / Oxfam America*



## With early warning, small problems in Ethiopia won't get a chance to grow Data collection helps communities plan for better responses in times of drought

In 2006, Oxfam and the Harvard Humanitarian Initiative launched an early surveillance system in Moyale, a dusty border town between Ethiopia and Kenya. The goal was to help officials in the region track public health trends that will warn them in advance about which droughts could become killers.

It starts with data collectors making the commitment to take a monthly trek to five far-flung households in each of the four villages. Sometimes the data gatherers, who are all women, will walk a full day to reach the households that are participating in the program. The households represent a range of prosperity, with some better off than others.

And it's the women in those households that the data collectors have come to see—because they are the ones with the hard facts about the well-being of their families. The women are available

most of the time while the men are away, traveling with livestock in search of pasture and water. Out and about in their villages, the women have been keeping mental tabs on what's been happening with others, too.

How much water seems to be in the ponds and streams this season compared to last? Are there more cases of diarrhea in the village this month—or less? How many meals a day are children getting? And how about the adults?

The data collectors spend 20 to 30 minutes at each of the five houses on their list, plotting the answers to 24 questions on a visual analog scale—a tool that gauges attitudes and perceptions that cannot be easily measured. And in this case, it's particularly useful in gathering data from people who may not be able to read. It's also easily con-

vertible for charting on a graph—from which the trends then become visible.

“We are using scientific methodology to convert feelings into comparable data. That's what makes this cutting-edge,” said Miriam Aschkenasy, an emergency medicine physician and Oxfam America's public health specialist. “If we can determine quickly what the effects of limited rainfall are, then we can start doing interventions long before things get so bad that severe malnutrition becomes widespread and feeding centers are our only recourse.”

▼  
Stretched out in the grass, Kurfa Duba answers the monthly surveillance questions while Terefa Bagado, a data collector with the Gayo Pastoralist Development Initiative, records the information. The information collected is part of an early warning system that Oxfam helped to develop so that communities in Ethiopia can quickly tackle problems related to changes in local conditions.  
*Emily Farr / Oxfam America*





## In Peru, Oxfam helps mountain hamlets prepare for the next bout of bad weather Acres of barley, gravity-fed sprinklers, and radio towers help herders face harsh conditions

There's a saying in Peru that describes the remotest of destinations: "the place where the devil lost his poncho," a place where disaster could strike and the outside world would never know until it was too late to help.

It's the kind of place Oxfam and its partner, Asociación Proyección, have worked in—at nearly 16,000 feet above sea level, in air so thin that newcomers lose their breath.

The place is the district of Caylloma, and the people who live here are alpaca herders. Oxfam's mission is to make sure that when trouble does come—as it has in the past and surely will again because of the changing weather patterns already faced by families in these Andean hamlets—they will be prepared to cope.

Climate change often causes extreme weather, including cold in some cases. In June and July of 2004, after a severe cold snap wiped out tens of thousands of llamas and alpacas across Peru's southern highlands, Oxfam and Proyección joined forces to find a way to prevent a repeat of the suffering that people experienced then. Their proposal included a range of self-help ideas, a smattering of technology, and the most important tool of all: planning.

Today, acres of barley now grow on the slopes—a buffer against food shortages for livestock. New adobe sheds with metal roofs stand in some of the coldest mountain pockets, offering critical shelter for alpacas that had none before. Gravity-fed sprinklers irrigate enclosed pastures of rye grass, guaranteeing a steady source of

nourishment for animals. And a handful of radio towers dot the district, connecting far-flung hamlets with the world at large.

Simon Ccalachua, who lives in the little village of Jachaña, put it this way: Without this project, nothing would have changed for him and his family. They had no choice but to accept what nature brought, good or bad. If the cold came, their animals died. But now, armed with new ways of growing the grasses their alpacas need and a way to shelter them, families like Ccalachua's can overcome the troubles nature brings.

▲ Eusebio Timoteo Lupinta Sapacayo shears about four pounds of wool a year off each of his alpacas, which he raises in the Peruvian Andes near the town of Caylloma. He earns about \$472 a year for his efforts. *Marisol Regis Fuentes / Oxfam America*



# A way forward

Oxfam America is campaigning to build awareness about the need to finance climate change adaptation. Together with other anti-poverty organizations, we're joining environmentalists, religious groups, and others to make sure that climate change does not continue to undermine the larger effort to end poverty.

## Oxfam America's recommendations:

### Advocate for adaptation funding.

The US must commit to helping poor people already struggling to deal with climate change by providing funding to help them adapt. Oxfam America is working through a domestic and international campaign asking the US to contribute significant financing toward adaptation.

### Build equity and fairness into adaptation funding.

Adaptation funding will have a real impact on poor people's lives if it is directed toward responses that are proven to be effective. Oxfam America is building on our experience in developing countries to advocate for adaptation financing that is implemented with adequate accountability, transparency, and community participation—especially among women and ethnic minorities. Oxfam will also work to identify and promote ways to leverage resources from the business community, which could help support effective climate change solutions.

### Promote equitable ways of reducing emissions.

Just like any comprehensive climate change strategy must include funding for adaptation, it must also include reducing greenhouse gas pollution. Oxfam America is advocating for the US to reduce its emissions dramatically. In addition, we are calling on the US to finance and deploy clean energy technologies in developing nations. These strategies must be pursued in an equitable manner that benefits poor people around the world and neutralizes any negative consequences for poor Americans. They should also support low-carbon technologies, which have the added benefit of providing new "green" job opportunities in the US and abroad.

If we fail to accomplish these goals, the people who are least responsible for climate change will continue to suffer the greatest consequences. But if we make progress, we will be on the road to real improvements in people's lives—and a more just and sustainable world for all of us.




A boy from the Wiwinik community poses with a hurricane early warning system on a riverbank in Nicaragua. *David Viñuales / Oxfam*

# Notes

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Women collect water from an Oxfam-supported pond construction near Moyale, Ethiopia.  
*Brett Eloff / Oxfam America*

While least responsible for causing climate change, poor people bear the brunt of its impacts. As an international relief and development organization dedicated to finding lasting solutions to poverty and injustice, Oxfam America is undertaking a campaign to create equitable solutions to the crisis. We are asking that the US cut greenhouse gas emissions and provide financial assistance so that the most vulnerable communities can adapt. For more information, go to [www.oxfamamerica.org/climate](http://www.oxfamamerica.org/climate).

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