

MERCY CORPS
CLIMATE CHANGE IN CONTEXT

CLIMATE CHANGE & ENVIRONMENTAL RESOURCES MANAGEMENT UNIT



Photo: Kate Gillon for Mercy Corps

INTRODUCTION

The increasing severity and frequency of climate change impacts calls for an immediate need to alter the way we conceptualize and respond to development issues. Challenges such as war, famine and financial recessions tend to be relatively short, over in less than ten years. Election cycles and national plans are usually over in less than five. By contrast, climate change and its impacts are set to progressively and noticeably worsen over the next twenty years and accelerate catastrophically into the final half of this century and beyond unless mitigation measures are put in place over the near term. We must pro-actively consider climate change problems in the long-term and find sustainable solutions that will help vulnerable populations adapt to unavoidable impact while advocating for global changes needed to slow climate change's pace.

Mercy Corps has committed to responding effectively to both the longevity and severity of the challenges perpetuated by climate change. As an agency that operates in over 35 countries and serves nearly 16.4 million people, we recognize our opportunity to educate and empower a significant global population capable of both adapting and mitigating the forces of climate change. Hence, we assert that sustainability and environmental programming is integral to fulfilling our mission of **alleviating suffering, poverty and oppression, by building secure, productive and just communities.**

The aim of this paper is to provide an informative context to climate change as it relates to the relief and development field, and Mercy Corps' work in this regard. Ultimately, it intends to show through demonstrated action and advocacy, an existing opportunity to create climate change programming that will help mitigate and adapt to the inevitable challenges caused by a warming planet.

This paper has three sections:

1. A brief introduction to the environmental and economic issues and impact of climate change;
2. An overview of where and how climate change will affect development issues;
3. A look at the current responses and future potential for Mercy Corps' climate change programming.

GLOBAL WARMING

Before exploring the relationship between climate change and Mercy Corps, we must have a clear understanding of the **process of global warming**:

Under normal circumstances, when sunlight hits the Earth, a proportion of its energy is stored in the ground and atmosphere, while some energy bounces off the Earth's surface and returns into space (figure 1). In the atmosphere, a collection of green house gasses is responsible for acting as a permeable barrier that reflects some energy while also allowing some to pass through, depending upon its concentration. Greater concentrations of greenhouse gasses, particularly CO₂, equate to more solar radiation being reflected to the ground and hence trapped in the atmosphere, resulting in an increase in the Earth's temperature; global warming. As the global temperature is directly related to climate conditions, global warming is an important factor contributing to the change we are seeing in our climate. While the pre-industrial concentration of greenhouse gases retained sufficient heat to sustain a relatively balanced climate that allowed life to evolve, since industrialization, the concentration has increased at an unprecedented rate and so has global warming.

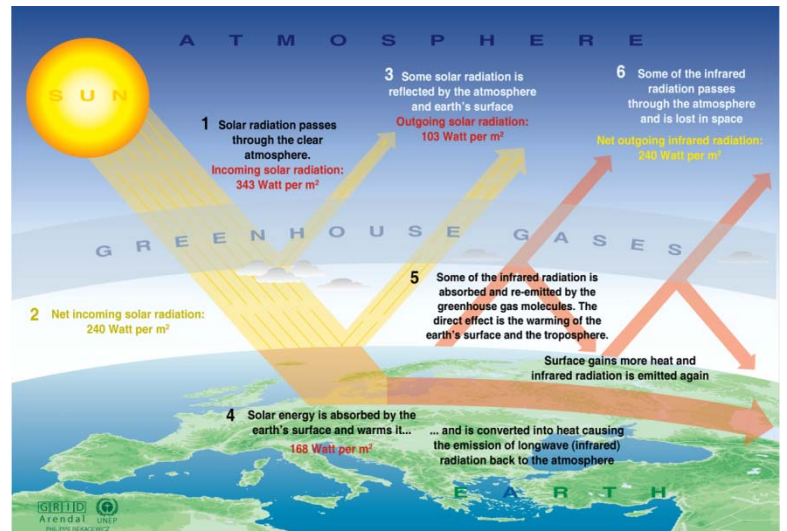


Figure 1: Root cause of climate change (from the Stern Review)

There is a range of predictions from different climate models about how fast the planet is warming and how this will affect the Earth's climate. However, what is clear is that the Earth has warmed by about 0.7°C since the Industrial Revolution. If we stopped all greenhouse gas emissions now, the Earth would still warm by another 2°C over the next couple of centuries. If emissions continue at current rates the earth will warm by 4°C before 2100.

A rise in global temperature of just 2°C may not sound drastic, particularly given that people can live sustainably over a >70°C range between the icecaps and equatorial deserts/tropics. But the impacts affect local conditions where the environment, flora and fauna, have adapted over millions of years in delicate balances. As these balances are upset, indicated by already significant changes to the Earth's current climate conditions, they will be manifested through impacts on food production, water availability and ecosystem resilience as well as extreme weather events. These changes will be most strongly felt at local levels and affect billions of people around the world (figure 2). Those most at risk are people already subjected to extreme poverty, conflict or food insecurity. Many of these vulnerable populations live in the world's developing nations and are dependant upon fragile natural and social environments that expose them to greater livelihood risks if climate change was to threaten their sources of food, water and shelter. The following are examples of how climate change may catastrophically impact the people whom Mercy Corps serves:

Glacier melt could affect 1/6th of the world population who are dependent on glaciers to supply and control the flow of water for drinking and irrigation. The disappearance of these life-support systems could lead to increased conflicts, migration and displacement of local populations.

Declining crops will be most severe in Africa, which has contributed least to the acceleration of climate change. Crops can be threatened through increases in desertification, shifting rainfall patterns and the spread of disease/disease carriers.

Rising sea levels up to about 2mm a year are set to continue at the current rate. The predicted rise over the course of the next century typically ranges from 10 cm to 90 cm, with most models predicting around 50 cm. At the conservative center, we should expect more than 200 million people to be displaced most likely leading to political unrest and conflict.

Ice sheet melt in Greenland could significantly increase the rise in sea levels, ultimately impacting a further 5% of humanity.

Global GDP, under the harsher climate scenarios, will be reduced by 20%.

Projected Impacts of Climate Change (Adapted from The Stern Review)

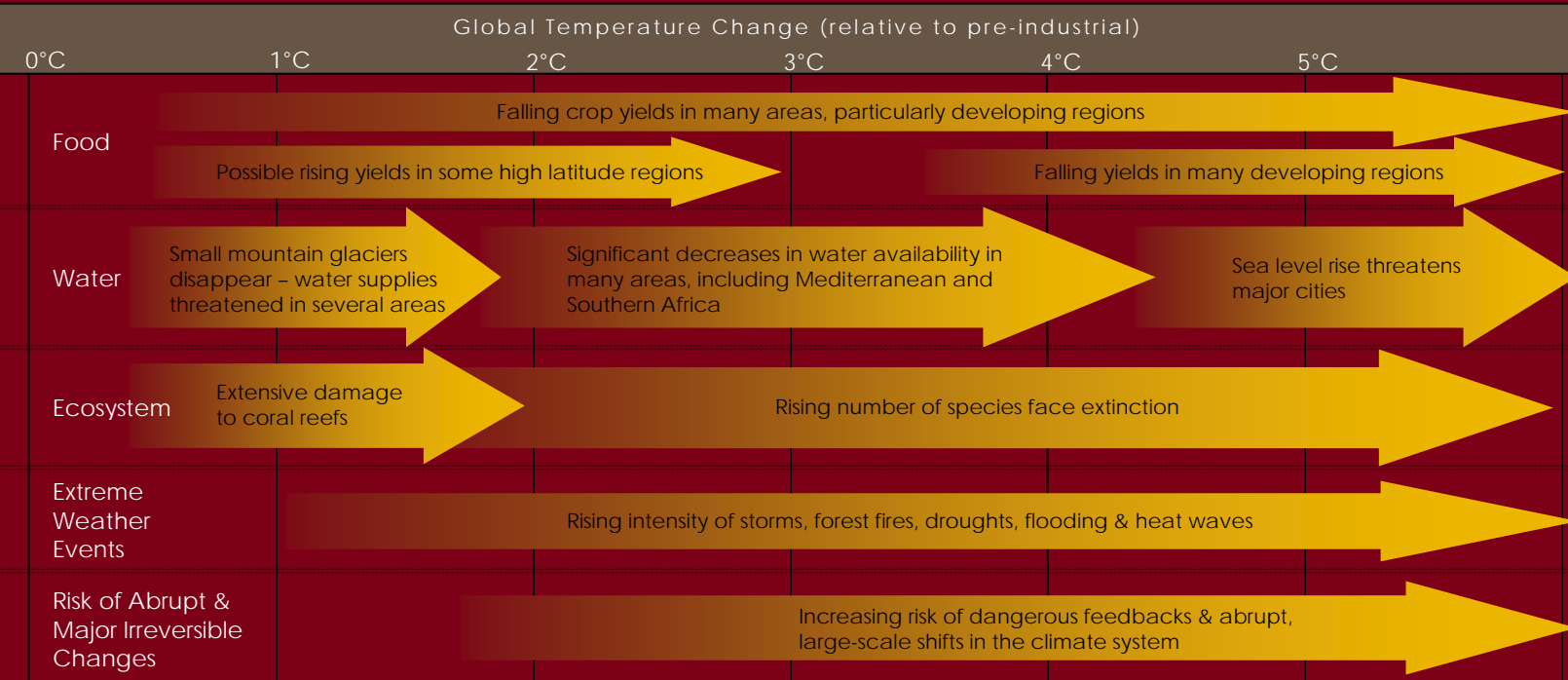


Figure 2: Climate impacts (from the Stern Review)

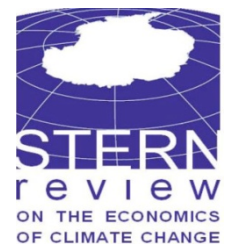
THE ECONOMICS OF GLOBAL WARMING

In the design and implementation of Mercy Corps' programs, we emphasize market strengthening and the importance of long-term economic security to ensure sustainable livelihood development. The effects of climate change that impact local value chains, systems of production and governing institutions threatens to destabilize both local and global market economies. Therefore, climate programming and assessments are integral to Mercy Corps' goals of securing sustainable livelihoods for those we serve.

The Stern Review

The Chancellor of the Exchequer to the UK commissioned a study from her Majesty's Office of the Treasury, by leading economist, Lord Stern, on the economics of climate change.

Lord Stern took an economists' lens to the issue and called climate change the greatest market failure the world has ever seen. A prevailing factor behind this statement is the conclusion that the poorer countries, which are the most affected by the impacts of global warming, are the smallest contributors to the problem.



The catastrophic repercussions of a warming planet will be expensive to fix, both in terms of adaptation, meaning preparing to meet the climate hazards we have created; and mitigation, reducing our greenhouse gas emissions. Ultimately, the cost of climate change-related damage will not be restricted to the poorer countries, but will be filtered through global markets.

As Lord Stern also remarked, what we do in the next 10 – 20 years will profoundly affect the second half of the century and beyond. Oxfam thinks \$50 billion a year will be needed just for adaptation, far more if emissions are not reduced. For mitigation, an updated review of the Stern report suggested 2% of global GDP (approximately \$60 trillion) would be needed to stop greenhouse gases reaching dangerous levels. As a reference point to put this figure in context, the financial contribution from the US towards winning World War II was \$288 billion, now worth \$5 trillion. Therefore, a singular national response will not be sufficient to reduce global warming. This truly international issue will require a fully integrated international response.



Photo: Thatcher Cook for /Mercy Corps

CLIMATE CHANGE: A FORCE MULTIPLIER

A big question for Mercy Corps is how does climate change impact our programming? A way to look at this is through the following four issues that crosscut much of the agency's work:

The Youth Bulge

Of the 1.1 billion youths aged between 15 and 24 years old, 1/3rd of them are under-employed or have a job earning less than \$2 a day. This already causes volatility in sub-Saharan Africa, Southeast Asia, the Middle East and North Africa. Aside from the losses of disempowered human capital, unemployment in a conflict-ridden nation may instigate rising numbers of child soldiers and youth combatants. As climate change forces migration, disrupting agriculture and food security, the problem compounds and risk increases.

Urbanization

For the first time in history, the majority of people live in urban areas, dependant upon rural agricultural systems for food security. Not only does this put significant strain on the natural environments supporting these urban centers, but high population densities are also leading to failed urban infrastructure and social systems, resulting in slums. To further exacerbate the problem, rising sea levels will cause massive displacement from many developing world coastal cities.

Fragile States

DFID defines a failed state as a nation whose government cannot or will not serve their people. The Fund for Peace publication, 'Failed States Index,' lists Sudan, Somalia and Zimbabwe as the most critical states in 2008. Marred by conflict that often extends beyond a nation's borders, failed states are at greater risk from the adverse effects of climate change. Failing agricultural systems and costal erosion may limit a country's capacity to resolve internal issues and also cause 'fragile states' to slip into the 'failed state' category; and currently weak states may become fragile.

Resource Conflict

Conflict often hinges upon access to water, arable land and other life-sustaining resources. As climate change puts an increasing pressure on the availability of these resources, conflict is likely to ensue.

Ultimately, regional tensions are expected to rise as all states, fragile and stable, vie for diminishing natural resources. A solution proposed to abate rising tensions caused by global warming is to help countries adapt via a 3D approach integrating diplomacy, development and defense strategies.

DEFINING THE OPPORTUNITIES WITHIN CLIMATE CHANGE

Mercy Corps has the potential to contribute to climate change **adaptation** and **mitigation**.

Adaptation means helping communities prepare for the impacts of climate change that are going to happen no matter what action is taken to prevent further global warming; this can also be viewed as long term Disaster Risk Reduction (DRR) in the face of chronic risk. **Mitigation** means addressing the root causes of climate change, hence reducing carbon emissions or capturing carbon from the atmosphere. Both adaptation and mitigation responses are integral to Mercy Corps' economic development strategy as they generate jobs and livelihood opportunity.

The opportunities surrounding climate programming appear to be getting a boost from the new US administration and there is hope this will spill over into international aid support. Domestically in the US, the current stimulus package reserves significant funds for the creation of renewable energy resources and energy efficiency. \$100 billion is projected through spending and tax breaks to encourage clean energy jobs and infrastructure.

Currently, there are two complementary bills. The Reid Act, still in development, addresses the US economy and security over energy and global warming. It seeks to invest in 'Green Job' creation, diversify and expand environmentally friendly energy supplies and reduce greenhouse gas emissions. The Stark Act recognizes that the US is responsible for 24% of carbon dioxide emissions, roughly 6 billion tons per year, and that an 80% carbon dioxide reduction by 2050 is needed to prevent catastrophic temperature rises. To do this, a tax on fossil fuel use is proposed to generate revenue that will be invested into researching and developing green technologies.

Opportunity also arises from the carbon markets. These were worth \$32 billion in 2006 and rose to \$64 billion in 2007. In late 2008 and early 2009 they have been reduced due to the fall in the global stock market, yet their trajectory should recover. These markets are based in carbon credits, in turn generated by projects that capture carbon, such as tree planting or reducing carbon emissions by improving energy practices, such as moving from cooking over open fires to fuel-efficient stoves. These markets are intended to provide a soft landing for industries lowering emissions, enabling them to reduce the damage they do over time.

To access carbon markets we need to understand the term 'additionality.' **Additionality** means that allocated carbon funds were *required* for a project's implementation, rather than simply an addition to a carbon-reducing project that would have happened regardless of the offset funds. As discussed later, Mercy Corps has captured carbon funding for a stove project for refugees in the Goma region of the Democratic Republic of Congo. While the carbon market is typically more suited for industrial projects, it is increasingly opening in ways that can work with vulnerable and poverty struck populations in development programming.

Another opportunity arises from a UN backed initiative known as REDD, *Reduced Emissions from Deforestation and Forest Degradation*. It is a fairly new, potentially lucrative, funding source for forest protection with climate-friendly outcomes. It is predicted to gather momentum in the next global climate meeting (COP) in Copenhagen at the end of 2009. Currently, consultants, financial houses and other environmentalists are trying to break into this market and give it greater definition. Mercy Corps has one proposal with a REDD focus for Colombia, but these are currently early days to consider rapid further expansion. However, Mercy Corps projects focusing on land tenure, forestry and agroforestry may be able to utilize this market before long.

Photo: Thatcher Cook for Mercy Corps





Photo: Cate Gillon for Mercy Corps

MERCY CORPS' RESPONSE TO CLIMATE CHANGE

The Climate Unit

Mercy Corps' focus on climate change recognizes that it threatens our past development legacy, the fruits of our current programming and the stability of the communities we serve.

The Climate Unit, founded in October 2008, is part of the Technical Support Unit (TSU). There are two full-time staff members, Jim Jarvie, based in Italy, and Dory Macintosh, based in Edinburgh, UK. Tom Keffer, a senior advisor based in Portland, USA, provides support in the carbon and business markets. The unit depends heavily on the help of volunteers and students working with Dory in Edinburgh, consultants and temporary staff often drawn from this same pool.

The Climate Unit has evolved in conjunction with field activities. Climate Change is not a new programming platform; instead it provides a lens through which energy, environmental and other programming can be consolidated and improved, developed for new funding and updated programming opportunities. Therefore, a major role for the Climate Unit is to better cross link programs, funding and strategies with other TSU units such as agriculture, food security, youth and conflict resolution. We also link with Disaster Risk Reduction and Social Innovations.

Mercy Corps believes that DRR is an essential part of our mission to help people build secure, productive and just communities. Climate *adaptation* relates to DRR programs by helping communities prepare for, mitigate the effects of, and respond to the hazards of natural disasters, exacerbated through climate change.

Social Innovations seeks to scale up successful field projects to viable economic scale. This recognizes that Mercy Corps footprints are relatively small compared to climate-related threats and opportunities; harnessing market forces to achieve significant impact is an agency aspiration.

The three main foci of the Climate Unit are firmly based in field interests reflecting **alternative energy**, **natural resource management (NRM)** and **advocacy and outreach**.

Alternative Energy

Mercy Corps' energy proposals and projects identify and promote alternative energy solutions that benefit poor and vulnerable communities while providing sustainable economic benefits at meaningful scale. Major examples include a stove program in Goma, DRC (discussed below,) and an alternative energy biomass program in Indonesia. Projects of smaller scale include the facilitation of a biodiesel plant in Bosnia as well as efforts to start another in Mongolia. In East Timor we are working on a GEF proposal with UNDP to address national energy poverty. Finally, the Cool Carbon campaign (<http://www.mercycorps.org/coolcarbon>) raises awareness and modest funds, so far of about \$60,000.

Natural Resource Management

NRM supports and promotes environmental best practices and enhances community capacity to protect the natural and ecological systems they depend upon. The Climate Unit tracks donors for natural resource management grant opportunities on topics including forestry, water access and land tenure as well as developing concepts and strategies for climate adaptation and disaster risk reduction. In the urban environment, the climate change / urbanization / development interface presents a profound challenge for the swelling numbers of people living in poverty. Using Jakarta as a top-flight example, Mercy Corps is integrating strategies to help the most vulnerable adapt to the potential impacts of climate change while providing people with new tools and technology jobs for the hope and realization of a more secure future livelihood.

Advocacy & Outreach

In recognition that Mercy Corps' programmatic footprint is small in relativity to the challenges posed by climate change, it is imperative that we work with others to try and scale up our environmental response. Advocacy and outreach play a crucial role in facilitating the growth of Mercy Corps programs through partnership with governments, the private sector and civil organizations. As well as affiliate NGOs, we also work with universities, think tanks and foundations such as Rockefeller with whom we have dual track relationship implementing activities in Asia while developing a practitioners network on a more global scale with other partners.

Photo: Thatcher Cook for Mercy Corps



PROJECT CASE STUDIES

Following are two current projects that help exemplify the challenges and opportunities climate change raises for Mercy Corps and the people we serve. The first focuses on adaptation programming and the second on mitigation.

Adaptation – Jakarta Urban Programming

The Challenge

Among Indonesia’s population of 240 million people, 50% live in urban areas, with 21 million of those living in slums. The poverty levels are extremely high with around 40% of the population surviving on less than \$2 a day. The general population is growing by 1.1% per year, yet urban migration is causing city populations to rise by 3.3% per year. As the poverty and population levels swell, Jakarta’s economic and social stability are at great risk of collapsing, especially when faced with the growing potential of frequent and severe flooding.

Jakarta, the capital city of Indonesia, plays host to the largest population in Southeast Asia. In 2007, a catastrophic flood led to the deaths of more than 50 people and the displacement of over 340,000 others. When the waters receded, the population returned to damaged houses, businesses and household goods, leaving their livelihoods in jeopardy. Disease risk was increased while clean water, already a scarce resource, was even more restricted.

The World Bank as well as many NGOs, governments and scientists agree that climate change plays a central role in the increasing frequency and severity of such events. As global warming continues, it is predicted that Jakarta’s already exemplified exposure to such natural disasters is set to increase in the coming years.

Mercy Corps’ Program Response

The Jakarta Urban Program focuses on urban poverty reduction, creating economic incentives for improving lives of those among low-income urban communities, by combining income-earning livelihoods and pro-poor market solutions with environmental services provision. Target interventions are geared towards generating household level income and household saving opportunities. The project is being implemented in Kelurahan Penjaringan, one of the poorest and largest slum neighborhoods in North Jakarta.

In order to design an effectual programming response, the Jakarta urban team conducted an assessment and strategizing session that analyzed the challenges posed by climate change on both the city’s population and Mercy Corps’ future programming plans. The team identified three major environmental threats directly related to climate change: increased rainfall, rising sea levels and increased temperatures (figure 3).

CLIMATE CHANGE’S AFFECT ON JAKARTA

Increased Rainfall

Poor sanitation
 Poor drainage
 No green areas

Flooding
 Water crisis

Sea Level Rise

Poor drainage
 Aquifer salination
 Coastal industry fails

Waste issues
 Water crisis
 Unemployment
 Land Loss
 Migration

Increased Temperatures

Increased pollution
 Decreased crop productivity

Health impacts
 Higher food prices
 Malnutrition
 Food Insecurity

Figure 3: Climate impacts on Mercy Corps programs in Jakarta

More rain, on top of poor sanitation, drainage and lack of green areas, is liable to lead to increased flooding and scarcity of potable water. Sea level rise, exacerbated by poor drainage, potential salination of fresh water sources and the high density of coastal industries, will intensify the water and waste crises, unemployment levels and land erosion. There is also great concern about rural-to-urban and inner city migration. Increased temperatures will heighten pollution levels and their damaging effects on health and the natural environment. Additionally, climate impacts on food production outside the city may put upward pressure on food prices and intensify the malnutrition and food security issues of the poorest and most vulnerable populations.

The Jakarta program now recognizes that addressing urban poverty will require, in addition to current programming interventions, activities including hazard mapping, micro insurance and greater engagement of governments. The latter will require a two-pronged approach. Mercy Corps will need to engage government institutions to support disaster preparedness at a macro scale, including better maintenance and upgrading of storm canals and flood gates. Additionally, especially in the face of increasing migration towards a city unprepared for a large number of new residents that are likely to live among the poorest and most flood-prone areas, greater attention to other risk reduction strategies is needed. These include securing land tenure and housing for the urban poor, providing efficient waste management, drainage and fresh water supply systems.

On a positive note, some initiatives have already begun. The Jakarta government and private sector are exploring the use of renewable energy sources, especially for those less able to afford kerosene due to price inflations. Expanding access to the growing carbon markets is providing invaluable subsidies to at least part of this project.

Conclusion

In order to create meaningful and effective programming in response to climate change effects, we must design strategic approaches with wider temporal and geographic perspectives. A traditional Mercy Corps or other development agency project tends to focus on target poverty areas with a limited geographic reach. Climate change forces us to expand our geographic scale of interest, in this case considering that the conjunction of sea level rise, deforestation in the hills behind the city and a lack of green space between them, will exacerbate flooding risks. If we want sustainable programmatic impacts, we also need to think about protecting our programming legacy over a 20 to 50 year period, or even greater. We must be modest enough to consider that our programming footprint is small in relation to the scale of the challenges we face, therefore our government and private sector partnerships are necessary to bolster our projects to significant scale and catalyze the massive climate-adaptation interventions required.

Photo: David Evans/Mercy Corps





Photo: Joni Kabana for Mercy Corps

Mitigation – Goma, Democratic Republic of Congo

The Challenge

The Democratic Republic of Congo (DRC) has been plagued by violent conflict for many years. The ‘Second Congo War’ fought between 1998 and 2003 was one of the deadliest conflicts since World War II, claiming over 5 million lives. Although peace deals have been signed, fighting has continued in many parts of the country.

Since November 2006, nearly 533,000 people have been internally displaced (IDPs) in North Kivu, bringing the total IDP population in the province to over 850,000. The majority of the IDP population is located on the margins of Virunga National park, one of the most precious environmental sites in Africa, causing unprecedented concentrations of demand for water, forest products and other environmental resources. Because demand exceeds supply, environmental erosion is a serious problem with severe consequences for current and future generations. While aid is unequivocally required in the region, the humanitarian relief effort is also heavily dependent on environmental resources and services. The current issue that country programs, supported by Mercy Corps’ Climate Unit, is faced with is: How do we incorporate environmental programming as a crosscutting theme to the general humanitarian relief response?

Mercy Corps’ Program Response

The project entitled ‘Urgent Assistance to the IDP sites around Goma,’ focuses on delivering relief while applying pro-active climate mitigation and environmental damage avoidance strategies. The project has three principal foci: The first is household energy, providing fuel-efficient stoves as well as training for energy-efficient cooking techniques. The second is agroforestry for energy and food security, the latter through intercropping agricultural commodities that will also improve the livelihoods of communities. Finally there is an environmental education component reinforcing the capacity of local environmental associations to safeguard environmental resources and services.

The project goal is to provide fuel self-sufficiency, human security via refugee camps and better natural resource management. Better human security means less trips to forest areas where women and children are vulnerable to abduction and sexual assault. Fuel-efficient stoves reduce the amount of wood needed. Complementary agroforestry programming provides wood, while intercropping food crops will enhance food security. These interventions contribute to reducing pressure on local natural resources and hence mitigate potential damages to the nearby Virunga National Park, home to the mountain gorilla.

Accessing Carbon Markets

Using less carbon through improved stove technology and growing trees are two ways that Mercy Corps is helping to both reduce carbon emissions and capture carbon as part of the Goma project. To capitalize on these carbon offsets by accessing market-based carbon funds, Mercy Corps has partnered with a commercial carbon trader. This company acquires funds from organizations and businesses looking to offset their carbon emissions through trade in ‘carbon credits’ and then inputs the capital into organizations that provide programs and initiatives that reduce and recapture carbon, such as Mercy Corps.

The funding from the carbon credits is meant to cover the robust monitoring and quality control measures that are needed to ensure that the project meets internationally accepted standards. It allows Mercy Corps to gauge the quantity of carbon offsets procured by the program. The carbon offsets for the Goma project are predicted in the following flow diagram (figure 4):



We expect to generate around \$270,000 over a three year period from the carbon offsets associated with the first phase of the new stove technology. This pool of funds generated by carbon trade also provides the necessary match funding required by donors for the project to get underway. Any surplus from the trade will be reallocated to facilitate the project's implementation and growth. Although carbon trading in Goma is a risky investment for a carbon retailer the strong humanitarian message associated with this project can lead to returns over and above normal profits.

This is Mercy Corps's first facilitated carbon trade. Getting here has been a long process and part of a steep learning curve, yet the expertise we have built up has generated the potential to lead to far larger and more numerous carbon trading projects in the near future.

ENDNOTE

Climate change threatens the legacy of many Mercy Corps programs, undercuts our current efforts and diminishes the security of the communities we serve. It undermines human and economic security as well as catalyzing social conflict. Addressing it is, and should be, integral to Mercy Corps' development work.

As put succinctly by Al Gore at the U.S. Senate Foreign Relations Committee in January 2009:

"The real question is whether we pay now in a way that also helps to break our addiction to oil, strengthens our global system and global standing and catapults us into the 21st Century economy with millions of new jobs and a jolt of economic stimulus.

Or, we can pay for it later on with a massive, unpredictable scale, the currency of environmental devastation, military commitments, human misery and reduced economic growth for decades to come."

- Al Gore

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You must be the change
you wish to see in the world.

~ Gandhi



Be the change