

Climate Change, Community Forestry and Development

Humbo Community Managed Forestry Project, Ethiopia

Ethiopia is a land prone to both periodic drought and flooding; natural resources are scarce and extreme poverty is rife. Climate change threatens to exacerbate these concerns, and may cancel out many of the positive gains made in Ethiopia's development in recent years.

"The poor do not have the necessary technology and resources, in terms of money and so on, to be able to change and adapt... We can only succeed to adapt to climate change if we fight poverty effectively and generate the resources needed for the purpose."

– Ethiopian Prime Minister Meles Zenawi, at a national climate change conference in Addis Ababa, 16 January 2009¹

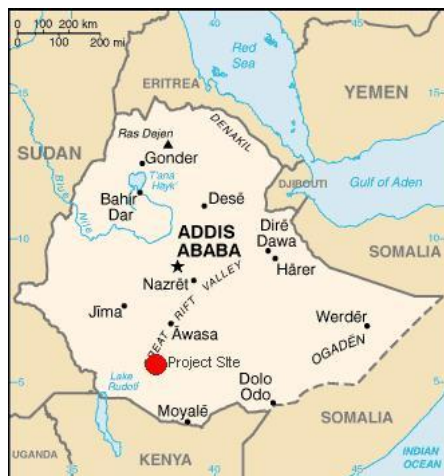
Offering a ray of hope is the Humbo Community Managed Forestry Project, Africa's first ever carbon trading forestry development. Here, World Vision is working with local co-operatives in greening barren land - restoring communities and the environment to a healthier and more resilient state.

Setting the Scene

Ethiopia is one of the poorest nations in the world with a per capita GDP of just \$US177 per annum. Agriculture dominates the country's economy, accounting for nearly half of GDP and for the vast majority of employment.²

However Ethiopia's agricultural sector is severely stifled by environmental degradation. The over-exploitation of forest resources has left less than 3% of Ethiopia's native forests remaining today. Severe erosion reduces the capacity of the land to absorb water, and has resulted in increasingly severe cycles of drought and flood.

Chronic food insecurity has left many of Ethiopia's children particularly vulnerable. Malnutrition is responsible for more than half of all deaths among children under age five.³ Droughts and floods intensify the pressures on poor households to take children out of school to engage in income generating activities.⁴



The Humbo region is located about 420 km southeast of the Ethiopian capital, Addis Ababa. Of the 48,893 people living in the Humbo area, an estimated 85 percent live in poverty. High population density, variable rainfall, environmental degradation and an over-reliance on maize has meant that the area still experiences food

Program Details

Total budget:
\$443,906
(Also US\$50,000 for capacity building from the World Bank)

Funding source:
World Vision Australia

Project Partners:

- Seven village cooperatives
- The Ethiopian Government
- The World Bank
- World Vision Australia
- World Vision Ethiopia

Target population: 48,893

Project start date:
January 2005

Project end date:
2014 (Phase 1)
The carbon credit purchase will end in 2017 with an option of renewing the buying until 2036 (since the crediting period is 30 years).

Climate change mitigation:

- Re-forestation
- Carbon sequestration / trading

Climate change adaption:

- Flood prevention / control
- Soil erosion control
- Protecting water resources
- Natural Resource Management
- Food Security

shortages.

The current state of the Humbo's mountainous terrain is highly degraded, rugged and chronically drought prone. Poverty, hunger and increasing demand for agricultural land have driven local communities to over exploit forest resources. This deforestation threatens groundwater reserves which over 65,000 people depend on for potable water. Soil erosion is also a severe problem in the Humbo region. Heavy rain events regularly cause flooding of lowland areas, and in extreme events, mudslides cause the death of people and livestock, and damage crops, roads, bridges and other infrastructure.



Soil erosion is a severe problem on Humbo's hillsides.

The Climate Change Challenge

Climate change is likely to impact severely on Ethiopia where resource scarcity and poverty make communities particularly vulnerable to environmental shocks. However the diversity of Ethiopia's landscape – from temperate mountainous plateaus to hot, humid lowlands - means that climate change will have varying impacts across the country.

The highlands of Ethiopia are becoming warmer and wetter, and based on regional climate change predictions, there is the likelihood of increasing intensity of tropical storms. Ethiopia's lowlands are already experiencing higher temperatures, prolonged droughts and less rainfall, but also significant flooding from rainfall increases in the highlands, and increased cyclonic conditions.⁵

With the highlands of Ethiopia becoming warmer and wetter, breeding sites are being established for malaria carrying mosquitoes in areas once reasonably free of the disease. The impact of climate change is likely to increase exposure to

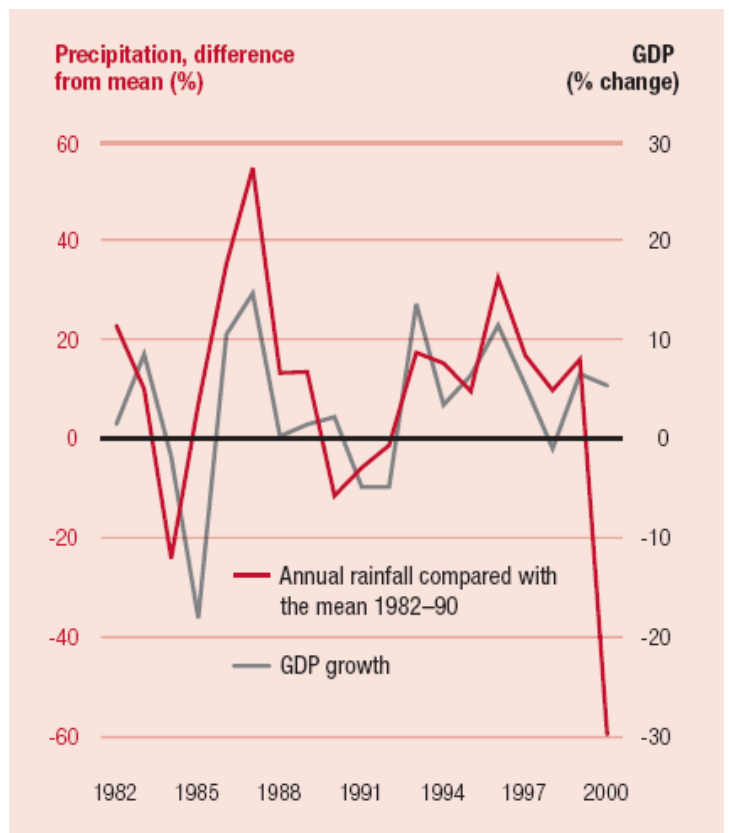


Figure 1: Income variability trails rainfall variability in Ethiopia. This graph demonstrates the vulnerability of Ethiopia's economy to changes in rainfall patterns. Climate change is likely to exacerbate rainfall variability.

Source: Human Development Report, 2007-2008

malaria infection by 16-28 per cent.⁶ Following the extreme floods of 2006, Ethiopia experienced a cholera epidemic and widespread loss of life and illness.

In the Humbo region, increased rainfall in the highlands and cyclone activity will lead to even further soil erosion, flooding and mudslides, while prolonged drought conditions will be exacerbated on the lowlands. In a country where 90 percent of the population depends on agriculture for their livelihoods, recurrent drought and flood events create poverty traps for many households, constantly thwarting efforts to build up assets and invest in a better future for themselves and their families (see figure 1).

These predictions suggest that climate change is ratcheting up the risks and vulnerabilities facing Ethiopia's poor and threatens to undermine long-term opportunities for overcoming poverty and meeting the Millennium Development Goals.

World Vision's Response

World Vision has a long history of community development work in Ethiopia and a strong legacy of community based forestry programmes. In 2005, World Vision identified Farmer Managed Natural Forest regeneration (FMNR) as a means to stimulate ongoing community development and to test new funding streams such as the Clean Development Mechanism (CDM). Developed under the Kyoto Protocol, the CDM allows for reforestation projects to earn carbon credits for each tonne of carbon dioxide equivalent "sequestered" or absorbed by the forest.

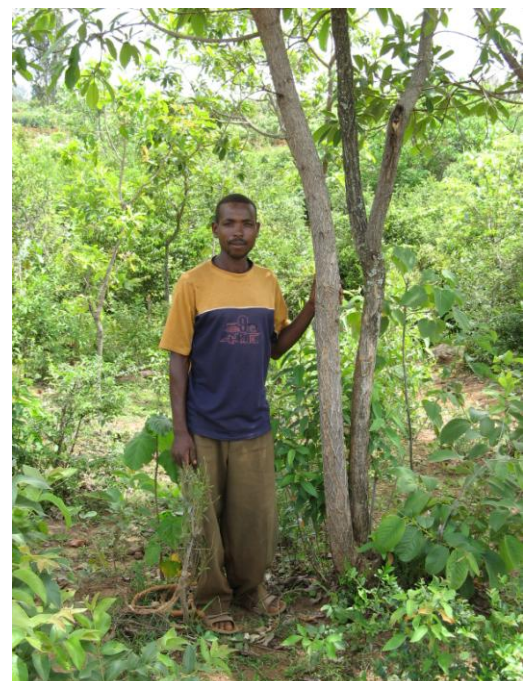
After two years of consultation, planning and negotiations, the Humbo Community-based Natural Regeneration Project was born under the Clean Development Mechanism (an arrangement under the Kyoto Protocol) becoming Ethiopia's first Land Use, Land Use Change and Forestry (LULUCF) carbon trading initiative. Recognising the link between forest preservation and the protection of livelihoods, the twin goals of this project are to mitigate climate change and alleviate poverty through reforestation.

In practice, the project involves the regeneration of 2,728 hectares of degraded native forests with indigenous, bio-diverse species. These forests act as a 'carbon sink' to mitigate climate change while at the same time building environmental, social and economic resilience for future climate change impacts. The sale of carbon credits will eventually provide an additional income stream to facilitate sustainable local development.

The Humbo project uses FMNR, an innovative technique developed by World Vision's Natural Resources Specialist, Tony Rinaudo. While conventional approaches to reforestation require the costly replanting of trees from nursery stock, over 90 percent of the Humbo project area is being reforested from the stumps of previously cut down (but still living) trees.

To supplement the FMNR reforestation, newly established tree nurseries are also raising over 450,000 seedlings each year to restore the forest where no living tree stumps remain.

Responsible for the management and protection of the regenerated forest are seven village-level cooperatives. World Vision staff are providing technical training and building the capacity of cooperative members. Much effort has also been invested in community consultation, education and awareness building around the concept of carbon trading.



Humbo's regenerating forest, 2008

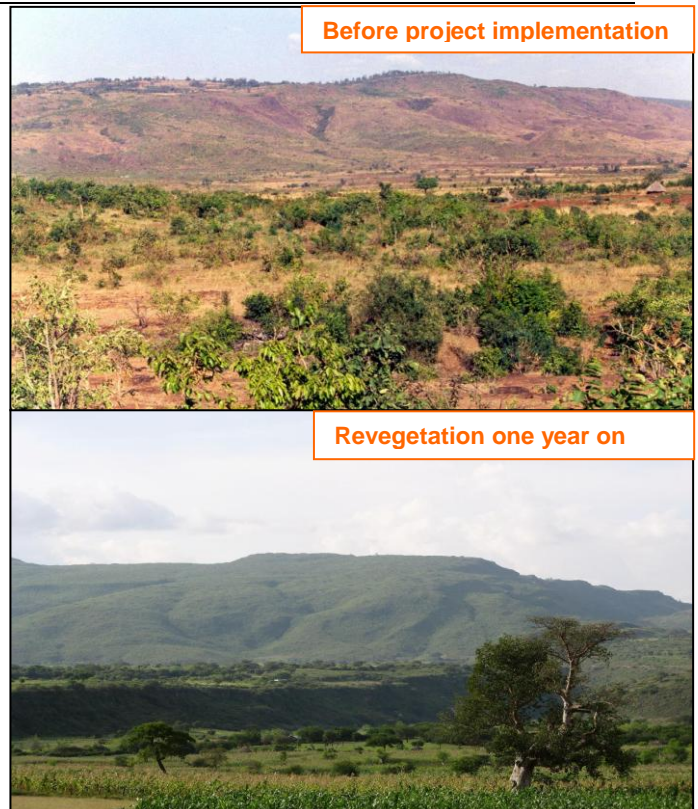
The Humbo project is the first large-scale CDM project for World Vision and indeed the African Continent due to be registered by the World Bank. Considerable negotiation has been required at national, state, local government and community levels. Partnership arrangements were made between World Vision Australia, World Vision Ethiopia, the World Bank, the Ethiopian Environment Protection Agency, as well as local and regional governments and the community. This process, while time consuming and requiring skills beyond the capacity of poor communities, laid a strong foundation for the project and for establishing future carbon projects in a more timely and cost effective manner.

Achievements

The Humbo project is a highly successful example of reforestation that alleviates poverty while addressing climate change through improved natural resource management.

The rapidly changing face of the forest is evident in the photographs right, showing rapid re-vegetation only one year on from inception. To date, 2,728 hectares of degraded forest that were being continually exploited for wood, charcoal and fodder extraction have been protected, and are now being restored and sustainably managed. Over the 30 year crediting period, it is estimated that over 870,000 tonnes⁷ of carbon dioxide equivalent will be removed from the atmosphere, making a significant contribution to mitigating climate change.

While many carbon trade deals have been stifled by the high cost of reforestation, the Humbo project has overcome this barrier through the use of the cost-effective FMNR approach.



Harvesting grass for sale as livestock fodder

The regeneration of the Humbo forest is also producing tangible benefits for the wellbeing of local communities. When a preliminary review of forestry activities was conducted in July 2008, a common sentiment expressed by community members was *“we are too much happy. We never expected to see so much grass growing from these rocky, barren slopes, to see trees growing so quickly or to harvest firewood so early in the program”*.

Forest restoration has resulted in increased production of wood and tree products, including honey, medicine, fibre, fruit and wildlife that contribute to household economies. Improved land management has stimulated grass growth, providing fodder for livestock and can be cut and sold as an additional source of income. At one site, Bola, 300 bundles of grass were harvested and sold over a year - an excellent outcome to

occur in the debut year of the project. Eventually it is hoped that carbon credits will provide a supplementary community-based income stream.

Reforestation is also reducing land degradation and soil erosion. Water infiltration is improving, resulting in the recharging of ground water and a reduction of flash flooding. (Note: because the rainfall is seasonal, the rivers are also seasonal and don't flow for much of the year). With the likelihood that climate change may cause increased rainfall in Ethiopia's highlands, soil stability is essential for reducing vulnerability to flash flooding and stabilizing soil for agricultural production.

Crops surrounding reforested areas also benefit through modification of the microclimate, which comes about through a combination of reduced wind speed, lower temperatures, higher humidity and greater infiltration of water into the soil. The resulting healthier crops and livestock are essential to community members' nutritional status, health and livelihoods, so the implications for development are great.

The Humbo project shows that community-based restoration of forests can mitigate climate change while at the same time building environmental and social resilience to the impacts of climate change.

The Challenges of Community Forestry for Carbon Trading

Some of the challenges experienced in the Humbo project have included:

- **CDM compliance issues:** The CDM compliance requirements made establishing the project both expensive and time consuming.
- **Difficulties in managing community expectations:** The community struggled to understand the concept of emissions trading. The most significant outcome for the community will be greater resilience to environmental shocks as well as creation of a stable income stream from forest products. Most community members had unrealistic expectations of the level of income that would be generated through carbon sales.
- The CDM registration process is long and time consuming, and the project is yet to be officially registered and recognised by the World bank board and participating countries.
- Actual projects costs are high and cannot be afforded by the community. World Vision Australia has been investing funds until such time when carbon trading will commence.
- Ownership of the emissions reduction credits is a complicated matter since only the government is recognised as the rightful owner of the land under which the sequestration is taking place. This leaves marginal space for NGO's to participate especially under the LULUCF- a key component under CDM Initiatives which require prolonged contractual obligations. The interventions of NGOs are short-term based.
- The land tenure system and fragmentation has created setbacks with part of Humbo dropped from the partnership with the World Bank, reducing the size of the forest and the emission reduction credits significantly.

Into the Future

The Humbo project is a prototype for other potential reforestation projects. World Vision Ethiopia is looking to launch several carbon offset reforestation programmes in the near future. While the Humbo project is presently fully funded, funding is needed for other potential project sites in Ethiopia and other African countries.

World Vision has identified the following critical success factors from Humbo which may be applied more widely:

- **Promotion of Farmer Managed Natural Regeneration (FMNR).** This technique is cheap, replicable and provides early benefits such as firewood harvesting. Realising these early and substantial benefits has increased community enthusiasm and commitment for the work.

- **Collaboration.** Early collaboration with government at all levels is essential. This makes project development simpler and more transparent. In the Humbo case, World Vision's good reputation within the community facilitated local and regional buy-in, and so established a foundation for state and federal government endorsement.

Experience in this project also highlights the need for improved carbon trading mechanisms and extensive community engagement:

- Streamlined and simplified compliance requirements more suited to a developing country context need to be developed. This may be easier to achieve in the voluntary carbon market.
- A higher price for carbon is required in order to cover both project costs and provide adequate remuneration to participating communities.
- Finally, future projects should be prepared to invest extensive amounts of time with community groups to manage community expectations. If the emphasis is on the "carbon income generating" aspect of a project, the much greater value of the activity (environmental restoration, agro-forestry, forestry, soil protection, agricultural sustainability and hence sustainable livelihoods) may not be appreciated by participating communities. In an extreme case, communities may even desist from protecting forests or tree planting (activities which bring benefits in their own right) unless there is a possibility of earning extra income from carbon sales. It is important that communities do not delay activities in the hope that carbon credits will pay them to do so in the future.

The Humbo project is achieving the essence of World Vision's mission - encompassing community empowerment, good stewardship and environmental sustainability to achieve inspiring developmental results. It embodies the World Vision policy on climate change, recognising that climate change and poverty are intrinsically linked, and can be addressed simultaneously to create a better future for the world's poorest children.



Contacts

Tony Rinaudo is Natural Resource Management Advisor for WVA. He was involved in the design of the Humbo project, and before joining WV he initiated a FMNR programme in Niger that now encompasses 50% of the farmland in that country. tony.rinaudo@worldvision.com.au

Joseph Kamara is WVA's Country Program Coordinator for Ethiopia and currently oversees the Humbo project. joseph.kamara@worldvision.com.au

Paul Dettman, Carbon Credit Advisor, WVA. Paul has been involved with the project since its inception. paul.dettmann@worldvision.com.au

¹ IRIN, 16 January 2009. Poverty hampers climate change adaptation, says PM. <http://www.irinnews.org/report.aspx?ReportId=82409> accessed 22 May 2009.

² IRIN, 2007. Federal Democratic Republic of ETHIOPIA: Humanitarian Country Profile <http://www.irinnews.org/country.aspx?CountryCode=ET&RegionCode=HOA> accessed 22 May 2009.

³ Unicef, 2006. Ethiopia http://www.unicef.org/infobycountry/ethiopia_12162.html accessed 22 May 2009

⁴ United Nations Development Program (UNDP), 2007. *Human Development Report 2007/2008 - Fighting climate change: Human solidarity in a divided world*. http://hdr.undp.org/en/media/HDR_20072008_EN_Complete.pdf accessed 20 May 2009

⁵ World Vision Australia, 2008, Regional Climate Change Predictions for Horn of Africa (Sudan, Ethiopia & Somalia)

⁶ *ibid*

⁷ UNFCCC, Clean development mechanism project design document form for afforestation and reforestation project activities (CDM-AR-PDD) Version 04, August 2008