





# CASE STUDY

## Humbo Assisted Natural Regeneration Project

### ETHIOPIA

## 1. PROJECT HIGHLIGHTS

Key Cross-Country Benefit	Key National Benefit
 <p><i>Reforestation has a great impact on the GHG emission reduction and on biodiversity, as forests serve as carbon sinks and natural habitats for various species.</i></p>	 <p><i>A considerate land use increases crop yield and food security. Positive employment effects and revenues from carbon credits strengthen the local economy.</i></p>

## 2. QUICK FACTS

Categories	Project Details
<b>Project Name</b>	Humbo Assisted Natural Regeneration Project
<b>Project Description</b>	The project countervailed the deforestation in the Ethiopian Humbo region. Through community-based farmland management and reforestation, a valuable carbon sink as well as an important biodiverse habitat was created. Additional revenue is generated through the sale of carbon credits.
<b>Global Public Good (GPG) Theme</b>	Climate & environment
<b>Sub-Theme</b>	Climate change mitigation
<b>Sector</b>	General environment protection

**Disclaimer:** We based the case study on the information cited and publicly available as of May 2023. The findings – especially concerning the GPG perspective – have been concluded to our best knowledge. The views expressed are the authors’ assessments and do not necessarily reflect the project stakeholders’ views. Any errors that remain are our responsibility.

<b>Country of Implementation</b>	Ethiopia
<b>Region</b>	Sub-Saharan Africa
<b>Income Category</b>	Low-income economies
<b>Implementation Period</b>	2006-2009
<b>Project Volume</b>	US\$ 1.38 million
<b>Financial source</b>	<b>World Vision Australia:</b> US\$ 653,000 (grant) <b>BioCarbon Fund:</b> 726,000 (sale of carbon credits)
<b>Instruments</b>	Technical assistance and sale of carbon credits
<b>MDB Involved</b>	World Bank
<b>Implementing Partner</b>	World Vision Ethiopia
<b>Link to detailed project information<sup>1</sup></b>	<a href="https://s3.amazonaws.com/CCBA/Projects/Humbo_Ethiopia_Assisted_Natural_Regeneration_Project/PDD+of+Humbo+project.pdf">https://s3.amazonaws.com/CCBA/Projects/Humbo_Ethiopia_Assisted_Natural_Regeneration_Project/PDD+of+Humbo+project.pdf</a> , <a href="https://assets.publishing.service.gov.uk/media/57a08a85e5274a27b2000639/AfricanAgCarbon-CaseStudy-Humbo.pdf">https://assets.publishing.service.gov.uk/media/57a08a85e5274a27b2000639/AfricanAgCarbon-CaseStudy-Humbo.pdf</a>

### 3. WHY THIS IS A BEST PRACTICE

- **Sustainability:** The project yielded strong positive effects for the local population on site. This increases their incentive to continue the project even after the immediate intervention by the project consortium is finished and makes it sustainable.
- **Scalability:** One main feature of the project is the close involvement of the local civilian population. If this can be maintained when increasing the project's dimension, it is scalable. The general agricultural technologies and infrastructural solutions as well as the carbon trading schemes work similar in larger settings. In fact, the project was planned to be scaled up within Ethiopia to overall 15 million hectares.<sup>2</sup>
- **Transformability:** The project was the first one in Africa to make use of a carbon trading mechanism under the Clean Development Mechanisms. This significantly changed the incentive structure to contribute to climate change mitigation and the preservation of biodiversity.

<sup>1</sup> Unless otherwise stated, the information used in this case study can be found in this source.

<sup>2</sup> World Vision Australia (n.d.): <https://fmnrhub.com.au/projects/humbo/#.ZBx9s8LMl2z>

## 4. PROJECT INFORMATION

### 4.1 CHALLENGES OF THE GPG PROVISION ON THE COUNTRY CONTEXT

**Preservation and afforestation of woodland area is one of the most central pillars in the protection of climate and environment.** The Land Use, Land Use Change and Forestry (LULUCF) sector is an important contributor to the reduction of greenhouse gases, as it can serve as a carbon sink. However, it can also become a net emitter of GHG, for example due to extensive and climate-damaging land use or deforestation. Between 2010 and 2019, it is estimated that 45 percent of the whole emissions in the Agriculture, Forestry and Other Land Use (AFOLU) sector is caused by deforestation.<sup>3 4</sup> This shows the importance of a sustainable and careful forest management.

In Ethiopia, **deforestation has been a pressing matter during the last decades.** Between 1990 and 2000, 40,000 hectares of forest were lost each year. This corresponds to a yearly reduction rate of almost 1%.<sup>5</sup> This is, for example, due to extensive livestock grazing or charcoal production. Oftentimes, the forests are not privately owned. In this case, there is no incentive for the local population to protect it, as the financial benefits from exploiting the resources are higher than from protecting the forest in its original state. However, this protection is necessary for climate change mitigation in the form of retaining natural sinks and the preservation of biodiversity through securing the habitat for endangered species. The benefits from these efforts extend beyond the national borders and contribute to the international endeavour for strengthening climate and environment.

The Ethiopian district Humbo in the Southwest of the country is a mountainous, originally forested, area. Before the **Humbo Assisted Natural Regeneration Project** had started, the vegetation had been heavily strained by charcoal production, livestock grazing, and tree cutting. It had been an example for a *tragedy of the common*: As the woodland area is owned by the Ethiopian government, no single person or group coordinates the considerate use of an area and can limit the use. Instead, the local population has an incentive to extensively use the area and exploit its resources, as this yields private benefits. In the case of Humbo, this had led to deforestation, because this up was more beneficial in the short term. Additionally, too extensive grazing imposed further stress on the land and prevented the growth of crop. This, in turn, imposes negative externalities on the climate and environment and makes intervention necessary.

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<sup>3</sup> United Nations Climate Change (n.d.): <https://unfccc.int/topics/land-use/workstreams/land-use--land-use-change-and-forestry-lulucf>

<sup>4</sup> The LULUCF sector is a sub-sector of the AFOLU sector. The latter additionally includes agriculture.

<sup>5</sup> Intergovernmental Panel on Climate Change (2003): [https://www.ipcc-nggip.iges.or.jp/public/gpplulucf/gpplulucf\\_files/GPG\\_LULUCF\\_FULL.pdf](https://www.ipcc-nggip.iges.or.jp/public/gpplulucf/gpplulucf_files/GPG_LULUCF_FULL.pdf)

**FIGURE 1: BEFORE THE PROJECT: CHAR-COAL PRODUCTION**



Source: [United Nations Framework Convention on Climate Change \(2009\)](#)

**FIGURE 1: BEFORE THE PROJECT: TOO EXTENSIVE GRAZING**



Source: [United Nations Framework Convention on Climate Change \(2009\)](#)

## 4.2 INTERVENTION

### 4.2.1 Project Design and Agents of Change

To counteract the development described above, the Humbo Assisted Natural Regeneration Project was put in place and conducted between 2006 and 2009. The main goal was land regeneration in this area. Precisely, it aimed at **restoring about 2,700 hectares of natural forest with native tree species to maintain the ecological balance**. While the absolute number of the protected area seems rather small compared to the absolute amount of forest in Ethiopia, its function as a home for numerous species as well as the long-term potentials for Co<sub>2</sub> sequestration still makes it important in the bigger picture.

The project follows a **bottom-up approach**: In seven community cooperative societies, the local community holds legal ownership over the land and is empowered to conduct farmer managed natural regeneration methods. This includes the planting of trees as well as the construction of natural fences to protect the concerned areas from too extensive grazing. This enables a restoration of the areas and a proper cultivation, which in turn leads to higher yields. The **surplus grass can be sold and serve as source of revenue**. Not only the resources can be sold and generate financial revenues, but also the forest's capacity to store CO<sub>2</sub>. The **GHG emissions that are sequestered through reforestation can be sold in the form of carbon credits**.

Several institutions were involved in the project. The local farmers were the mainly entrusted with enforcing and conducting the specific measures. World Vision Ethiopia in combination with World Vision Australia provided technical assistance, covered the management costs, and served as a coordination unit. In the medium term, a Farmers' Forest Union was planned to serve as an umbrella institution and intersection between the farmers on site and the implementing agencies. Another additional role is played by the **Government of Canada** in combination with the World Bank's **BioCarbon Fund**, which serves as the carbon credit buyer. This is

**880,000 t**  
CO<sub>2</sub>e are expected to be sequestered by the reforested area over 30 years.

possible, as the Humbo Assisted Natural Regeneration Project is the first large-scale forestry project in Africa that is implemented within the Clean Development Mechanism of the Kyoto Protocol.<sup>6</sup> Already before the start of the project, World Vision Ethiopia has signed an Emission Reductions Purchase Agreement (ERPA) with the BioCarbon Fund to generate financing upfront. The whole amount of carbon revenues is passed on to the community cooperative societies to pursue further investments.

#### 4.2.2 Expected Results

The positive effects in terms of GHG emission reduction due to this reforestation are estimated to correspond to almost 30,000 t CO<sub>2</sub>e per year over a crediting period of 30 years, which translates **to 880,000 t CO<sub>2</sub>e being sequestered over this time period**, which roughly corresponds to the yearly CO<sub>2</sub> emission of Liberia.<sup>7</sup> <sup>8</sup> Already by 2017, it was expected to generate 338,000 tonnes of carbon credits, half of which was planned to be purchased by the World Bank's BioCarbon Fund.<sup>9</sup> Additionally, the newly afforested woods can serve as habitat for indigenous animal species, of which 119 were on the IUCN Red List of threatened species. As the project is already finished, an evaluation of the actual area that has been restored can take place. In fact, the project has reached its goal of about 2,700 hectares of reforested area. After the fundamental infrastructure and community structures had been implemented with the technical assistance by World Vision Ethiopia, the project can continue to exist independently and the payments from the carbon credits can be invested in new material and infrastructure on an ongoing basis.<sup>10</sup>

## 5. PROJECT IMPACT

### 5.1 NATIONAL BENEFITS

For Ethiopia, the project yields several national benefits. First, through a more sustainable and considerate land use, the agricultural yields could be increased. Before the project, the land had provided almost no grass for the livestock, as the extractive grazing has strained the land. Additionally, the environmental degradation had led to a high vulnerability towards fluctuations in rainfall intensity because the soil and plants had not been resilient to these events. After the project, the improved growth of grass enables the farmers to properly feed their livestock. This can contribute to **food security**. Additionally, **the surplus production could be sold** and generate economic revenues, which translate to **positive income effects**. A revegetated area can also prevent soil erosion in the case of intense rainfalls and serve as water reservoir and contributes to strengthening the groundwater reserves. Second, through the bottom-up approach in the form of the creation of community

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<sup>6</sup> World Bank (2010): <https://www.worldbank.org/en/news/press-release/2010/03/03/africas-first-large-scale-forestry-project-under-the-kyoto-protocol>

<sup>7</sup> World Bank (2011): <https://documents1.worldbank.org/curated/en/327231468336659605/pdf/765660WP0Bi-oca00Box374386B00PUBLIC0.pdf>

<sup>8</sup> Worldometers (n.d.): <https://www.worldometers.info/co2-emissions/co2-emissions-by-country/>

<sup>9</sup> World Bank (2012): <https://blogs.worldbank.org/climatechange/how-small-grant-helped-lead-way-greener-landscape-humbo-ethiopia>

<sup>10</sup> World Bank (n.d.): <https://www.biocarbonfund.org/sites/biocft1t2/files/documents/Ethiopia%20-%20Humbo.pdf>

cooperative societies, the project yielded **positive employment effects**. The local farmers could become engaged in the initiative on site, they could incorporate their knowledge and build up a vital network. Third, through the **sale of carbon credits, additional income** for the farmers could be generated, which can be re-invested in infrastructure and commodities. Fourth, the community approach can **strengthen the social cohesion and contribute to an active and impactful society**.

## 5.2 CROSS-COUNTRY BENEFITS

Reforestation yields **strong positive effects for climate change mitigation** and the **preservation of biodiversity**. The advantages that arise from a reduction of GHG emissions benefit all countries. Also, the protection of threatened species through the strengthening and expansion of their habitat contributes to biodiversity as a whole, which is in turn important for the global ecological balance.

The fact that the project is developed under the Clean Developed Mechanisms within the framework of the Kyoto Protocol creates further direct positive externalities of the initiative in Ethiopia for other countries – in this case, for the countries that purchase carbon credits. It enables them to **reach their emission-reduction targets** by investing money in countries in which climate-friendly initiatives can be conducted more efficiently.

Additionally, the benefits of the project exceed the direct advantages discussed in the previous chapter. Economic deprivation – for example through missing agricultural production possibilities – can lead to societal unrest and conflicts. Thus, **strengthening the local citizens economically through new employment and income opportunities stabilises social relations and contributes to peace on site, which in turn strengthens the GPG of peace and security**. This is further increased through the community-based approach of the project, which increases the involvement of civil society.

FIGURE 2: REFORESTATION RESULTS



Source: [World Vision \(2009\)](#)

# 6. LESSONS FOR FUTURE GPG PROVISION


## 6.1 SUCCESS FACTORS

The Humbo Assisted Natural Regeneration Project was at its time the first project in Africa that includes carbon trading in the LULUCF sector.<sup>11</sup> The project stands out by its **twin goals**: On the one hand, the **reforestation initiative contributes to climate change mitigation and the preservation of biodiversity**, which is beneficial far beyond the borders of Ethiopia. On the other hand, it **alleviates poverty on site**, for example through additional revenues that can be reached through the sale of crop or the sale of carbon credits. This makes it highly worthwhile for people on the ground to become engaged in the project. The acceptance within society for this project is very high, because they directly benefit from it. Due to the bottom-up approach and the self-interest of the local population to continue it, the project impact can sustain even after the immediate intervention by third parties is finished. The main success factor of the project is the combination of a sophisticated and effective carbon trading mechanisms with concrete measures that take effect already in the short term and have immediate positive effects for the local population.

## 6.2 HOW TO REPLICATE THE BEST PRACTICE

In addition to that, the following lessons can be learnt from the project and can be used to replicate the best practice project:

- To implement land restoration projects, it makes sense to create a framework in which the local population has an incentive to contribute. By following a bottom-up approach, the acceptance on site as well as the effectiveness and sustainability even after the project ending can be increased.
- Carbon trading arrangements can work as incentives to conduct measures in the realm of climate protection. However, it makes sense to create additional motivation for the relevant actors to decrease the dependence on external funding.
- Knowledge constraints and the tragedy of the common can prevent an effective and sustainable use of land. Technical assistance is a central component in the implementation of projects in which the involvement of actors on site is crucial.
- The basic idea of the project is highly replicable and has in fact already been replicated in Niger, Chad, and Burkina Faso. Overall, about 2 million hectares of land have been reforested within the framework of those initiatives.<sup>12</sup>

 *“The battle to stop terrestrial landscape degradation can be won by adopting and replicating successes such as Humbo across Ethiopia and the globe.” - (Edward Felix Dwumfour, Senior Environmental Specialist, World Bank)*



<sup>11</sup> World Vision (2009): <http://fmnrhub.com.au/wp-content/uploads/2013/09/Donaldson-2009-Humbo-Community-Managed-Forestry.pdf>

<sup>12</sup> World Bank (n.d.): <https://www.biocarbonfund.org/sites/biocft1t2/files/documents/Ethiopia%20-%20Humbo.pdf>