

China Green Carbon Foundation

Using voluntary carbon offset funding to develop forests for bioenergy



Background and drivers

China is gradually moving from an energy-intensive economic development model to a low-carbon economy. The Chinese government promotes afforestation as a key strategy for climate change mitigation, and is increasing efforts to speed up the pace of plantations nationwide. The funding for afforestation is mostly from government budgets. Over the past few years, and in response to government calls to increase forest carbon, the industrial sector in China has been looking for innovations in corporate social responsibility and new investment opportunities.

In July 2007, as a bridge between the Chinese government and the private sector, China Green Carbon Foundation (CGCF – previously known as China Green Carbon Fund), was initiated. The co-sponsors include China National Petroleum Corporation (CNPC), State Forestry Administration (SFA) and Sino-Forest Corporation Canada.

CGCF has raised US\$60 million for developing forests for bioenergy and carbon, and other related projects. Carbon sequestration in plantations is recorded in the corporate social responsibility accounts of donors on CGCF's website. CNPC, the biggest donor up to now, has donated US\$40 million, which will be mainly used for developing bioenergy plantations.

The *jatropha* bioenergy forest plantation in Yunnan is one of the demonstration projects funded by CGCF. The growing trees sequester carbon, while also producing oily seeds which can be used as an alternative biofuel.

With the successful implementation of these projects, more and more individuals and enterprises are donating to CGCF to offset their own carbon emissions, whether from day-to-day activities or agricultural and industrial processes.

Summary

The Yunnan bioenergy plantation was established in 2007 and 2008, with funding of US\$1.2 million coming solely from CGCF. A forest area of 22,083 hectares of *jatropha curcas* L. was planted in nine counties around the cities of Yuxi, Chuxiong, Lijiang and Xishuangbanna, in Yunnan province. Local governmental forestry agencies have contracts with CGCF to manage the plantations.



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Best management practices

Professional afforestation companies planted the woodland, strictly following the best practice standards of the National Technical Regulations on Afforestation (GB/T15776-2006) issued by the SFA. Independent field inspections authorized by CGCF in 2009 showed seedlings to have a 73 per cent survival rate, which is better than the regulations require.

In order to reduce greenhouse gas (GHG) emissions and maximize carbon sequestration, the disturbance rate to the woodland was kept below 10 per cent during site preparation. All GHG emissions from establishing the plantation were recorded and deducted from the carbon sequestration account.

Estimating carbon sequestration

CGCF assigned the carbon accounting and monitoring of Yunnan's bioenergy forest project to Kunming Survey and Design Institute of SFA (Kunming Institute) in 2007; the crediting period of the project is 20 years. The Kunming Institute's methodology is based on CGCF's guidelines on carbon accounting and monitoring of afforestation projects. It involved collecting all project design documents, a field investigation of the plantation sites, and analyzing the baseline of the project in 2007 and 2008. It established a growth model for *jatropha curcas L.* to estimate the potential carbon to be sequestered. This worked out at approximately 1.41 million tons of CO₂ equivalent over the next 20 years.

Challenges

Jatropha seeds provide a source of renewable biofuel. However, there is a lack of manufacturers to process this oil. Further investment is needed for a local processing plant.

Increased demand for jatropha oil would provide a sustainable income for farmers, and increase their motivation to manage the plantations.



Jatropha plantations in China provide carbon storage, bioenergy and local jobs.