



Jiangxi Province Le'an County Forest Farm Carbon Sink Project

Distinctive features

The Project involves improved forest management through conversion of 7,746.7 ha of logged forest spread over eight departments to protection forest status (LtPF). All eight departments are state-owned forests and have the legal right to forest ownership. The carbon rights are held by Beijing Shengdahuitong Carbon Management Co., Ltd. The tree species involved in the project are Chinese Fir and Slash Pine. Before the project, the trees were logged based on a government-approved timber management plan for harvesting the project area.



The conversion of forest status started from 01/01/2006. All forests in the project area are now protected under non-commercial forestry status. The proponent estimates that the project will reduce GHG emissions by 3,377,151 tCO₂e over 30 years. The project is expected to contribute to biodiversity conservation and soil erosion control.

| | Heading | Explanation |
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| Locational factors | | |
|  | Location | <p>Le'an County, Jiangxi Province 江西省乐安县</p> <p>The project area includes 50 parcels spreading over eight departments</p> <ul style="list-style-type: none"> - Jinzhu department 金竹乡 - Zhaoxie department 招携镇 - Zengtian department 增田乡 - Niutian department 牛田镇 - Shipi department - Gongxi department 公溪镇 - Shipi Harvest-Nuture department - Zhaoxie Harvest-Nuture department |
| | Spatial boundaries | <p>Project area: 7,746.7 ha Reference area: None Leakage monitoring area: None Leakage management area None</p> |
| | Land cover | Chinese Fir and Slash Pine |
| | Agents and drivers of forest cover change | <p>Agents: local forestry farm Underlying drivers: Planned timber harvest based on a valid and verifiable government-approved timber management plan for harvesting the project area Proximate causes: Rotational harvesting of trees at maturity</p> |
| Basic project features | | |
|  | Objectives | <ul style="list-style-type: none"> ▪ Improved Forest Management (IFM) of the forests through the conversion of logged to protected forest ▪ Contribution to the environment (biodiversity conservation and soil erosion control) and sustainable development. |
| | Proponent/s | Beijing Shengdahuitong Carbon Management Co., Ltd. 北京盛达汇通碳资产管理有限公司 The main business of the project proponent is carbon capital development, management, trading and especially forest carbon sinks |
| | Tenure and Carbon rights holder/s | <p>Tenure state-owned forests</p> <p>Carbon rights carbon rights are owned by the project proponent</p> |
| | Actors involved in project design and | <ul style="list-style-type: none"> ▪ Beijing Shengdahuitong Carbon Management Co., Ltd. 北京盛达汇通碳资产管理有限公司– developing the carbon credits of the project |

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| implementation and their roles | <ul style="list-style-type: none"> DTM (Beijing) Energy Technology Development Co., Ltd. 大唐摩科瑞(北京)能源科技发展有限公司 – role not explained, but appears responsible for Project Description |
| Upfront financing | No data |
| Start date | 1 Jan 2006 |
| Crediting period | 30 years |

Baseline emissions



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| Methodology | VCS VM0010 ver. 1.2: Methodology for Improved Forest Management: Conversion of Logged to Protected Forest |
| Reference data (unplanned deforestation/degradation) | Not relevant |
| Reference data (planned deforestation/degradation) | Historical management records of the forest farm |
| Stratification of project area | <p>The project area is divided into five strata based on the trees species and the age class.</p> <ul style="list-style-type: none"> Chinese Fir-I Age 0-5: 822.93 ha Chinese Fir-II Age 6-10: 116.93 ha Chinese Fir-III Age 14-19: 6,703.65 ha Slash Pine-I Age 0-5: 43.20 ha Slash Pine-II Age 12-16: 60.00 ha |
| Deforestation/degradation rate and location | <p>Historical (unplanned deforestation/degradation): Not relevant</p> <p>Projected</p> <ul style="list-style-type: none"> Temporary deforestation occurs as a result of rotational harvesting <p>Likely baseline scenario</p> <ul style="list-style-type: none"> Continuation of the pre-project land use, as the timber harvest plan is based on the business license of the project proponent, historical management records of more than 5 years of the local forestry farm which contracted with the project proponent and Forestry Right Certificates of the Project dated 2001. According to the Timber Harvest Plan, there are 1272.67 ha of Chinese Fir with the ages from 16 to 19 in 2005 that would be harvested under the baseline scenario. <p>Modelling procedure</p> <p><u>Emissions</u></p> <p>For the purpose of estimating the net annual changes in carbon stocks resulting from planned timber harvest in the baseline scenario a detailed planned timber</p> |

harvesting schedule will be developed from the timber harvest plan, spelling out details of harvest for each land parcel in the project area in terms of the following:

- a) the species to be harvested;
- b) the year (1,2,3...) in which timber harvest of each land parcel is scheduled to occur;
- c) the number of years each land parcel is in a post-harvest state during the project crediting period;
- d) the maximum and minimum diameters at breast height (DBH), at stump and at top for tree harvesting;
- e) the planned harvesting regime (clearfelling, specie/stratum-selective logging, area-selective logging);
- f) technical specifications for the categories of wood products to be harvested; and
- g) the total volumes or fractions to be harvested, broken down by categories of wood products defined as sawnwood, wood-based panels, other industrial roundwood, paper and paper board, and other.

Sequestration

- Calculated with species-specific annual change of above-ground biomass.
- IPCC default value of aboveground net biomass growth in natural forest subtropical/ subtropical humid forest/ Asia (continental $\leq 20y$): 9.0 t d. m. ha⁻¹ y⁻¹ used.

Carbon pools

Carbon pools included

- Aboveground tree biomass ✓
- Belowground tree biomass ✗
- Non-tree woody biomass ✗
- Litter ✗
- Dead wood ✓ (logged slash, included in the baseline), ✗ (naturally accumulated)
- Soil ✗
- Wood products ✓

Estimation method

▪ Carbon pool in above-ground tree biomass was calculated using pre-existing forest inventory data carried out through field survey finished at the end of 2005 by the local forest bureau. The project area involves five strata and 394 sub-compartments, with at least one 0.04 ha plot in each. Mean carbon stock of each strata is calculated using wood density and carbon fraction of biomass of Chinese Fir and Slash Pine. The wood density data of the two species is based on the national species-specific values from Forestry Part of China's GHG emissions list of Ecological Environmental Institute, Chinese Academy of Forestry (National GHG inventory)

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| | <ul style="list-style-type: none"> ▪ Carbon pool in dead wood (logging slash) generated in the process of timber harvest was calculated as differences between the total carbon stock of harvested biomass and the carbon stock of the extracted timber. Both values were calculated from mean volume of extracted timber in each stratum for each species. Biomass conversion and expansion factor applicable to wood removals of the two species is based on Forestry Part of China's greenhouse gas emissions list of Ecological Environmental Institute. |
| <p>Carbon stock changes</p> | <ul style="list-style-type: none"> ▪ Net GHG emission in each year = GHG emission from parcels harvested 1 years ago + GHG emission from parcels harvested 2-10 years ago + GHG emission from parcels harvested 11-20 years ago - Carbon stock change due to forest regrowth in all parcels. ▪ GHG emission from parcels harvested 1 years ago include fraction of biomass carbon from wood waste and short lived wood product for each wood product. <ul style="list-style-type: none"> - Fraction from wood waste is 24% as the project activity is located in China as a developing country (according to VM0010 ver.1.2 and Winjum et al. 1998). - Fraction from short lived wood product is zero as the wood products are wood base panels. ▪ GHG emission from all parcels harvested less than 10 years ago include fraction of biomass carbon from dead wood (logging slash). ▪ GHG emission from all parcels harvested less than 20 years ago include fraction of biomass carbon from long-term decay of retired wood products for each wood product calculated with linear function (Winjum et al. 1998). <ul style="list-style-type: none"> - Fraction of biomass carbon from wood products is 0.86 as the project activity is located in temperate zone (Winjum et al. 1998). ▪ Regrowth rate is calculated from the IPCC default values for aboveground net biomass growth in natural forests in IPCC Guidelines for National GHG Inventories (2006). |
| <p>GHG emissions</p> | <p><u>Carbon dioxide (CO₂)</u></p> <ul style="list-style-type: none"> ▪ Combustion of fossil fuels (in vehicles, machinery and equipment) ✘ ▪ Removal of herbaceous vegetation ✘ <p><u>Methane (CH₄)</u></p> <ul style="list-style-type: none"> ▪ Combustion of fossil fuels (in vehicles, machinery and equipment) ✘ ▪ Burning of Biomass ✓ |

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| | <p><u>Nitrous oxide (N₂O)</u></p> <ul style="list-style-type: none"> ▪ Combustion of fossil fuels (in vehicles, machinery and equipment) ✘ ▪ Nitrogen based fertilizer ✘ ▪ Burning of Biomass ✘ |
| Net emissions without project | Net carbon stock change: 731,414 tCO _{2e} |

Project GHG emissions reduction strategy



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| Scope | Improved Forest Management (IFM) |
| Leakage mitigation strategy | NA |
| Activities | Conversion of logged to protection forest |
| Non-permanence risk mitigation strategy | NA |
| Additionality | <p>Identification of alternative land use scenarios</p> <ul style="list-style-type: none"> ▪ Only logging and protection were the realistic alternative land used scenarios. - The project has not been registered, or is seeking registration under any other GHG programs. - The project neither has nor intends to generate any other form of GHG-related environmental credit for GHG emission reductions or removals claimed under the VCS Program, or that any such credit has been or will be cancelled from the relevant program. <p>Investment analysis</p> <ul style="list-style-type: none"> ▪ Investment analysis demonstrates that the proposed project activity is not the most economically or financially attractive of the identified land use scenarios. ▪ Net Present Value (NPV) in baseline scenario (logging) is $8,314 \times 10^4$ Yuan, whereas NPV in project scenario (protection) is -916×10^4 Yuan. <p>Sensitivity analysis</p> <p>Sensitivity of the investment analysis was tested varying the price of the trees, the operating and maintenance cost the extracted trees, and the subsidy price within 10%.</p> |

With-project emissions



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| Effectiveness of measures | 100% in avoiding emissions (Total uncertainty was estimated as 0.0887. As this is less than 0.15, the amount of GHG credits were not reduced.) |
| Carbon stock changes | Annual carbon stock change in aboveground biomass calculated as difference in mean carbon stock in aboveground biomass between sampling events |
| GHG emissions | None |

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| | <ul style="list-style-type: none"> ▪ Carbon stock change due to fire disturbance is zero because there is no burnt area in the historical record. ▪ Carbon stock change due to non-fire disturbance is also zero in the project area. In case non-fire natural disturbances occur ex post in the project area, the area disturbed will be delineated. ▪ Carbon stock change due to illegal logging is also zero since there are clear infrastructure, hiring and policies in place to prevent illegal logging. A participatory rural appraisal (PRA) of the communities surrounding the project area will be completed every two years to determine if there is the potential for illegal extraction of trees from the project area. |
| Leakage | <p>Types</p> <p>Activity shifting leakage: There is no leakage due to activity shifting as the total area belonged to the project proponent since 2001.</p> <p>Market leakage: VM0010 ver. 1.2 defines the leakage factor considering where in the country logging will be increased as a result of the decreased supply of the timber caused by the project. No market leakage is expected as:</p> <ul style="list-style-type: none"> - There would be no new concessions assigned. According to the national law, the forest harvest limit every year is the maximum limit, which must be strictly implemented and could not be broken. This proportion of the total national harvest from the project area is very tiny and would not lead to new concessions being assigned. - The estimated annual extracted volume of the project was only 0.01% of the national extracted volume from 2006 to 2009. The decreased supply of timber caused by the project will not impact total supply within national boundaries - The project is not expected to drive illegal logging, which constitutes a crime to which criminal responsibilities are affixed. Governments at all levels in China monitor and control illegal logging. <p>Deduction: 0tCO₂e</p> |
| Non-permanence risk | <p>Buffer: 23%</p> <ul style="list-style-type: none"> ▪ Internal risks (project management, financial viability, opportunity cost, and project longevity) and external risks (land tenure, community engagement, and political risk) and natural risks were analysed according to AFOLU Non-Permanence Risk Tool: VCS ver. 3 |
| Ex-ante estimated net greenhouse gas emissions reductions | <p>Total over crediting period: 2,600,400 tCO₂e</p> <p>Annual average to be credited: 86,680 tCO₂e</p> <p>Annual average per ha: 11.189 tCO₂e ha⁻¹</p> |

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| Monitoring of carbon stock changes and emissions | <p>Parameters</p> <ul style="list-style-type: none"> ▪ Illegal logging ▪ Area covered by each stratum ▪ DBH ▪ Area burnt ▪ Area disturbed ▪ Merchantable biomass and portion of total aboveground tree biomass <p>Methods</p> <ul style="list-style-type: none"> ▪ Illegal logging – PRA; Sampled by surveying multiple transects, GIS analysis; Also monitoring in sample plots ▪ Area of stratum – legal parcel records ▪ DBH and merchantable biomass – plot monitoring ▪ Area burnt and disturbed – ground survey with GPS and / or remote sensing data <p>Frequency</p> <ul style="list-style-type: none"> ▪ Every 2 years for PRA; Transect sampling whenever PRA reveals potential of illegal logging ▪ Not less than every 5 years for DBH, merchantable biomass and burnt and disturbed area monitoring |
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Stakeholder identification and engagement

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|  | Stakeholders identified | All of the stakeholders and the residents of the areas. <i>However detailed information on the stakeholders, other than the project proponent, is not provided in any of the reports.</i> |
| | Identification process | No information |

Full and effective participation

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|  | Access to information and consultation | <ul style="list-style-type: none"> ▪ Comments by stakeholders have been invited using participatory rural appraisal (PRA) approaches. These were conducted in Dec 2005. ▪ To familiarize the proponent with the opinions and ideas for this project from all stakeholders and to provide benefit to the residents of the areas affected, 14 local farmers were visited on 15/01/2012. |
| | Participation in design, implementation and monitoring | <ul style="list-style-type: none"> ▪ Participation of local farmers/communities and companies/farms is on a voluntarily basis. ▪ According to the PRA exercise, all the stakeholders supported the conversion activity from logged to protected forest. ▪ The comments received from the PRA survey were taken into account as follows: <ul style="list-style-type: none"> - All tree species used are locally native and mixed species arrangements will be used. |

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| | | <ul style="list-style-type: none"> - Use of chemical pesticides will be limited. Rather, disease and pest will be controlled by mixed tree species arrangement and other biological measures. - Slash and burn site preparation and overall ploughing for soil preparation will not be used. |
| | Feedback and grievance redress procedures | No information |
| | Worker relations and safety | No information |

Communities

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|  | Without-project scenario | No information |
| | With-project scenario | No information |
| | Impact monitoring | No information |

Biodiversity and ecosystem services

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|  | Without-project scenario | No information |
| | With-project scenario | <ul style="list-style-type: none"> ▪ The key mitigation action of the project activity is avoiding the harvesting of the forest. ▪ As an AFOLU project, this is an environment-friendly project and Environmental Impact Assessment (EIA) is not required for logged to protected forest projects according to Construction project classification management of environmental impact assessment list. |
| | Impact monitoring | An EIA is not required for logged to protected forest projects according to Construction project classification management of environmental impact assessment list. |

Progress

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|  | Validation | VCS validation report issue date: 2014/4/21 |
| | Verification | VCS verification period and report issue date: 01/01/2006 to 31/12/2009; 2014/4/21 |
| | Number VCUs issued | Number: 90,545 As of: 18 January 2016 |

Further information

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|  | <ul style="list-style-type: none"> ▪ VCS Project Database: http://www.vcsprojectdatabase.org/#/project_details/1162 |
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Documents reviewed

- VCS Project description:
<http://www.vcsprojectdatabase.org/services/publicViewServices/downloadDocumentByld/15476>

- VCS Validation Report:
<http://www.vcsprojectdatabase.org/services/publicViewServices/downloadDocumentById/15477>
- VCS Monitoring Report:
<http://www.vcsprojectdatabase.org/services/publicViewServices/downloadDocumentById/15480>
- VCS Verification Report:
<http://www.vcsprojectdatabase.org/services/publicViewServices/downloadDocumentById/15481>