



Cordillera Azul National Park REDD Project

Distinctive features

Cordillera Azul National Park (PNCAZ) REDD Project aims to protect a large, intact expanse of lower-montane forest remaining in Peru. The project area consists of 1,351,964 hectares within the park that belongs to the national government of Peru. Upon its formation in 2002, the Peruvian non-government organization (NGO) Centro de Conservación, Investigación, y Manejo de Áreas Naturales– Cordillera Azul (CIMA) voluntarily signed an agreement with the Peruvian government to support the management of the park.

The total population in the districts around and including the park in 2008 was 321,000. This population has access to the park for subsistence hunting and fishing. The possibility of non-contacted indigenous people from the Cacataibo group living in the southeast region of the park led to the establishment of a “strict protection zone” (Zona de Protección Estricta in Spanish) in the region that permits zero outside entry. Until these people come out of their own volition and request contact, the region remains closed to all entry or use.



The PNCAZ REDD Project will be implemented and managed by CIMA in collaboration with partners in Peru and the United States. CIMA is the only NGO with a contract with the Peruvian government for full management of the entire national park and buffer zone. The project’s primary objective is to prevent all deforestation in PNCAZ. CIMA will achieve this objective by focusing on two categories of activities: park protection activities and buffer zone activities to stabilize and promote sustainable land use and improve the quality of life for the communities.



The greatest driver of deforestation in the project zone is the advancement of the agricultural frontier. As immigrants move to the area from the high Andes, they are not familiar with the local ecosystem, crops or communities. Immigrants tend to clear an area and then farm for a period of time until the land erodes or is unfertile. Once this happens, the family tends to move on to a new parcel of land and repeat the cycle. Park protection activities prevent incursions into the park and raise awareness of the boundaries and permitted uses inside the park. Buffer zone activities are designed to slow or stop advancement of the agricultural frontier. Assisting

communities in land use zoning and development of sustainable agricultural practices aims to allow families to use their land in ways that reduce erosion or depletion, permitting them to remain in the same location rather than move on and deforest additional lands every few years. Land tenure also helps stabilise land use: families with clear, uncontested title to their land are much less likely to migrate or deplete their soils.

	Heading	Explanation
Locational factors		
	Location	Cordillera Azul National Park (PNCAZ), central Peru
	Spatial boundaries	Project area: 1,351,964 ha Reference area: 3,193,479.36 ha Leakage monitoring area: Leakage belt established, but size not explicitly given in VCS PD Leakage management area: Leakage mitigation will be conducted in the Buffer Zone, which has a total area of 2,301,117.24 ha
	Land cover	Alluvial forests; hill forests; mountain forests; wetlands
	Agents and drivers of forest cover change	Agents: Immigrants from the high Andes, illegal loggers (individuals or bands) Underlying drivers: Immigrants not familiar with the local ecosystem or crops; Weak local law enforcement Proximate causes: Subsistence agriculture; ranching; logging
Basic project features		
	Objectives	<ul style="list-style-type: none"> ▪Protecting the park ▪Building local capacity for sustainable land use and improving the quality of life in the buffer zone communities ▪Strengthening relationships with local, regional and national government agencies
	Proponent/s	Centro de Conservación, Investigación y Manejo de Áreas Naturales – Cordillera Azul (CIMA – Cordillera Azul). Responsible for coordinating and overseeing all project activities
	Actors involved in project design and implementation and their roles	<ul style="list-style-type: none"> ▪CIMA ▪Local communities through consultation prior to the next Plan Maestro ▪Organisations that assisted in development of project documentation <ul style="list-style-type: none"> ▪ The Field Museum

	<ul style="list-style-type: none"> ▪ TerraCarbon LLC
Tenure and Carbon rights holder/s	<p>Tenure: CIMA has 20 year full management contract of the park starting 8 August 2008</p> <p>Carbon rights: CIMA has carbon rights for 20 years, starting from 8 August 2008</p>
Upfront financing	CIMA via various funders.
Start date	8 August 2008
Crediting period	8 August 2008 – 7 August 2028 (20 years)

Baseline emissions



Methodology	Methodology VM0007 module BL-UP v3.1. The population driver approach is employed.
Reference data (unplanned deforestation/degradation)	<p>Reference period: 1989-2003</p> <p>Types of data used:</p> <p>Landsat imagery: 1989, 1999, 2003</p> <p>1981, 1993 and 2007 Instituto Nacional de Estadística e Informática (INEI) official censuses – for population estimates</p>
Reference data (planned deforestation/degradation)	Not applicable
Stratification of project area	<p>Three forest strata: Alluvial forests; hill forests; mountain forests</p> <p>Also, wetlands</p>
Deforestation rate and location	<p>Historical</p> <p>2.38% in the reference area</p> <p>Projected</p> <p>68,351.85 ha deforested in the project area from 2009 – 2018 (baseline period)</p> <p>Likely baseline scenario</p> <p>Continuation of deforestation activities taking place prior to CIMA's work in the region</p> <p>Modelling procedure</p> <ul style="list-style-type: none"> ▪ Time series of classified Landsat imagery from 1989 to 2003 was used alongside population estimates for each district for the years 1989 and 2003 interpolated from 1981, 1993 and 2007 Instituto Nacional de Estadística e Informática (INEI) official censuses. ▪ Land cover classifications of forest and non-forest were created for each time step. Forest cover change in each district between 1989 and 2003 was assessed from this time series of classified Landsat imagery. ▪ For the baseline, the deforestation rate was projected for each municipality in the reference region using the dynamic analysis of the correlation between population

	<p>and deforestation.</p> <ul style="list-style-type: none"> ▪ Location analysis was conducted since the population driver approach for projecting rate of deforestation was employed. Spatial analysis was conducted with the IDRISI TAIGA software and the Land Change Modeller (LCM) which is an integrated software environment. LCM was used to produce a vulnerability map of the project area and leakage belt. ▪ Factors included in the modelling: distance to roads, rivers, towns, forest edge, mining concessions, indigenous areas, elevation, slope, soil, vegetation, geology
Carbon pools	<p>Carbon pools included</p> <ul style="list-style-type: none"> ▪ Aboveground tree biomass ✓ ▪ Belowground tree biomass ✓ ▪ Non-tree woody biomass ✓ ▪ Litter ✗ ▪ Dead wood ✓ ▪ Soil ✗ ▪ Wood products ✗ <p>Estimation method</p> <ul style="list-style-type: none"> ▪ Stocks from within the PNCAZ were derived from the 2009 forest inventory of PNCAZ ▪ Leakage belt stocks were derived by first delineating three high order forest classes - humedales-vegetacion inundable and vegetacion de tierra firme and anthropogenic forest. ▪ For each of the three classes, spatially-explicit aboveground biomass data were obtained from which an area-weighted mean live aboveground tree carbon stock was estimated. ▪ Belowground biomass was then estimated from aboveground biomass. ▪ Stocks of lying and standing dead wood were estimated referencing proportion of total forest carbon represented by these pools of 7%, as calculated from results of the 2009 PNCAZ forest inventory.
Carbon stock changes	<p>The resulting non-forest land-use practices in the baseline are cultivation (shifting cultivation) and pasture. Preference was given to sourcing locally-derived estimates of biomass carbon stocks for these classes. Where local estimates were unavailable, values were sourced from IPCC 2006GL and global literature.</p>
GHG emissions	Excluded
Net emissions without project	28,970,971.6 tCO ₂ e

Project GHG emissions reduction strategy



Scope	Avoided deforestation
Activities	<ul style="list-style-type: none"> ▪Current signage, park guard stations and control posts will be evaluated and expanded as appropriate. ▪Signs and park guard stations will be maintained. ▪Strategies of protection and control inside the park will be updated and modified as needed. ▪The communal park guard programme will be expanded. ▪Park guard reports will be sent to both CIMA's Tarapoto office and SERNANP (National Service of State National Protected Areas). ▪An illegal cattle rancher will be removed. ▪New Plan Maestro will begin to be drafted. ▪Quarterly reports to SERNANP to summarize CIMA's activities will be created. ▪ Zonificación Ecológica Económica will be implemented in the districts of Shamboyacu, Pólvora, Campanilla y Alto Biavo; including 15 towns (centros poblados) and 1 indigenous community in the four districts. ▪Comprehensive extension strategy for involvement of buffer-zone communities in park protection will be designed. ▪Data from 2008 community asset mapping methodologies to gather information needed to plan activities and update the Plan Maestro will be analysed. ▪Classroom in Action primary education modules in 3 towns in Shamboyacu will be implemented. ▪Agreements will be renewed with the UGELs (Education Districts) of Tocache, Contamana, and San Martin to continue working formally with the schools. ▪Two formal environmental education guides will be published. ▪Community outreach programme will be implemented. ▪Regional community meetings will be held to identify regional land use and quality of life 20-year visions. ▪Community-wide activities that will achieve the goals of the communities, diminish deforestation in their lands, and avoid deforestation in PNCAZ will be agreed and the best means to scale the pilot projects up to community or region-wide efforts will be defined. ▪Data will continue to be gathered on individual community characteristics, composition, backgrounds, values, and activities to inform, update, and revise activity planning. ▪Relationships with local, regional, and national

	<p>governments will be maintained and expanded strategically.</p> <ul style="list-style-type: none"> ▪CIMA will identify ways to support the government agencies in processing information, raising awareness of laws and regulations, and identifying threats to PNCAZ. ▪CIMA will continue to advocate for the park as necessary to mitigate threats from new roads, logging, mining, or oil concessions, and other impending events.
Leakage mitigation strategy	Leakage due to market effects is not anticipated as wood collection is subsistence-driven.
Non-permanence risk mitigation strategy	<ul style="list-style-type: none"> ▪Concessions in the buffer zone – The Peruvian government has granted timber, mining, and oil concessions in the buffer zone. CIMA will continue to build relationships and work closely with local, regional, and national government entities to monitor concession activities. ▪Lack of land tenure in the buffer zone – Results in weak ties to a specific location and no motivation to remain as erosion and soil depletion occurs. CIMA will teach sustainable land-use practices; facilitate land-tenure processes; communicate with as many communities as possible, and improve the quality of life in the communities. ▪Illegal activities in the buffer zone creating additional deforestation pressure – CIMA will raise awareness of laws and regulations to enable communities to monitor and report illegal activities. As many illegal activities are driven by a need for additional resources, local communities will be taught sustainable land-use practices. ▪Increased tensions between communities – CIMA cannot work with all communities and must prioritise. Communities not located in critical areas may become jealous. CIMA will work to ensure constant communication with as many communities as possible to identify and address concerns as quickly as possible.
Additionality	Annual management costs associated with Cordillera Azul National Park are roughly \$1.7 million USD. With the successful validation and verification of the project, the annual costs are expected to increase 20% to expand the land use and extension activities to a larger number of communities in the buffer zone (roughly 35% of communities have benefited to date and that proportion would increase), undertake the carbon monitoring and verification of carbon credits, expand communication efforts of the project to the secondary stakeholders, undertake outreach and capacity building among other REDD proponents in Peru, and cover inflation on such costs as salaries, transportation, and equipment. No

additional sources of revenue exist for the project.

With-project emissions



Effectiveness of measures	Assumptions: 90% success rate in preventing illegal deforestation; No emissions from degradation from illegal logging
Carbon stock changes	Emissions from illegal logging (degradation) are excluded, as none observed since 2006
GHG emissions	Excluded, but in each monitoring period, non-CO ₂ emissions will be evaluated and if >5% will be included.
Leakage	<p>Types</p> <p>Activity shifting: Leakage emissions accounted for are entirely from displacement of unplanned deforestation. For ex ante purposes, a leakage factor of 20% is applied, i.e. 20% of deforestation caused by local agents is shifted outside of the project area due the project activity.</p> <p><i>Leakage was also calculated for potential migrants (agents of deforestation) into the area that the project causes to move to other areas.</i></p> <p>Market effects: Leakage due to market effects is equivalent to zero because the project is not anticipated to impact any commercial harvesting activities.</p> <p>Deduction</p> <p>Estimated leakage deducted from net REDD benefits with project</p>
Non-permanence risk	<p>Buffer</p> <p>Risk buffer of 10% is used</p>
Ex-ante estimated net greenhouse gas emissions reductions	<p>Total over crediting period: 15,752,683 tCO₂e (2008 – 2018)</p> <p>Annual average: 1,572,268 tCO₂e (2008 – 2018)</p> <p>Annual average per ha: 1.16 tCO₂e (1572268tCO₂e/1351963.85ha)</p>
Monitoring of carbon stock changes and emissions	<p>For accounting purposes the project conservatively assumes stable stocks and no biomass monitoring is conducted in areas potentially undergoing carbon stock enhancement.</p> <p>Data and parameters</p> <ul style="list-style-type: none"> ▪ i. Carbon stock changes due to deforestation and natural disturbance ▪ ii. Area of deforestation, disturbance, etc. ▪ iii. Carbon stocks ▪ iv. Biomass carbon of trees cut and removed ▪ v. Burnt area <p>Methods</p> <ul style="list-style-type: none"> ▪ i. Calculated ▪ ii. Analysis of classified satellite imagery

	<ul style="list-style-type: none"> ▪iii. Plots and transects (for leakage area from peer reviewed literature) ▪iv. Diameter measurements of cut stumps in sample plots ▪v. GPS coordinates and/or Remote Sensing data <p>Frequency</p> <ul style="list-style-type: none"> ▪i. At least every 5 years ▪ii. Each monitoring/verification event ▪iii. At least every 10 years ▪iv. At least every 5 years ▪v. At least every five years
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Stakeholder identification and engagement



Stakeholders identified	<ul style="list-style-type: none"> ▪Two groups – primary stakeholders with direct involvement in the project area; secondary stakeholders are communities in the buffer zone without residency or rights in the project area. ▪Primary stakeholders – Ministry of the Environment, Peru; SERNANP; PNCAZ; Regional Environmental Authority, San Martin; Conservation, Management and Sustainable Use Programme of Loreto’s Biodiversity (PROCREL), Loreto; Moore Foundation; USAID; MacArthur Foundation; Exelon; CIMA Board Members; Representatives of the park guards of PNCAZ; Grupo REDD Peru representative.
Identification process	<p><i>Not directly mentioned, however the project document states CIMA is making efforts to reach all stakeholders particularly those in the buffer zone.</i></p>

Full and effective participation



Access to information and consultation	<ul style="list-style-type: none"> ▪Key project documents will be posted to CIMA’s website in both English and Spanish. ▪Monthly visits of CIMA’s technical field staff to communities will provide an opportunity to present information and receive comments from the secondary stakeholders.
Participation in design and implementation	<ul style="list-style-type: none"> ▪Minutes of the CG (Comité de Gestión) meetings, park guard reports and technician reports will capture the input received from communities. ▪Emails, meeting minutes and phone logs will capture input from primary stakeholders. ▪The Index of Conservation Compatibility documentation and quarterly project reports will capture how the plan has been revised as a result of stakeholder dialogues. ▪Once the regional community meetings have occurred in 2008 and early 2009, a summary document will be prepared in conjunction with the new Plan Maestro documenting this input process, its results, and how the

	project has been developed in line with it.
Feedback and grievance redress procedures	<ul style="list-style-type: none"> ▪There is no formal written procedure for the complaints process but it will be applied consistently. ▪To date, all issues have been satisfactorily resolved through this process. ▪Issues addressed immediately in the field will be documented in the park guard's or technician's report without formal written summary provided to the individual. ▪For issues that cannot be immediately resolved and forwarded to CIMA's offices or Headquarters, a written response will be issued to the individual in question within 30 days.
Worker relations	CIMA abides by and exceeds its obligations to workers based on laws, providing all social and health benefits established by law.

Communities



Without-project scenario

Assessment done using existing studies: Social Asset Mappings that CIMA and The Field Museum conducted in 2003, 2005, and 2008 with buffer zone communities, using community assemblies and household interviews to conduct structured and semi-structured interviews. Eight focus groups were used in each community along with individual interviews: four focus groups included residents of both genders and all age groups, two focus groups included only women, one group was of community leaders, and one included only specialists or experts (e.g., the best hunters). Individual interviews were conducted with health workers, teachers, and directors of the local school if one is present, and other significant individuals like shamans, healers, and community leaders or founders.

Variables: Community identity, migration, visions for the future, local myths and legends, resource consumption, social organization, agriculture, timber and non-timber products, and economic activities

Description

- Risk without the project to the non-contacted indigenous peoples reported to use the south eastern portion of PNCAZ.
- Expansion of settlements and subsistence farming activities from the buffer zone into the park and an expected increase in illegal logging. Extraction of park resources and deforestation could generate short-term economic gains for a few people, but these activities would be illegal and thus not without risk for most people doing the work.
- Expansion of agricultural lands into the park area would

	<p>occur in the absence of the project, but without opportunity for land title, ownership, or stewardship.</p> <ul style="list-style-type: none"> ▪No funding for land use planning in the buffer zone and reduced support to local and regional governments to enforce zoning. ▪Increases in land speculation, and uncontrolled population growth with more in-migration, resulting in an increase in already severe erosion and soil loss, and aggravated droughts and reduced river flows.
With-project scenario	<p>Expected net benefits</p> <ul style="list-style-type: none"> ▪The project is expected to ensure that there is no contact with the indigenous people in isolation who use the park, as well as to protect the area they use. This is a net positive impact. ▪Significant improvements in land security and quality of life for communities in the buffer zone. <p>Possible negative impacts on other stakeholders and mitigation strategy</p> <p>The project is not expected to have any direct impact, positive or negative outside the project zone.</p>
Impact monitoring	<p>Indicators</p> <p>Natural capital, social capital, human capital, physical capital, economic capital</p> <p>Methodologies</p> <ul style="list-style-type: none"> ▪Natural capital – field staff reports ▪Social, Physical and Economic Capital - Community Asset Mapping ▪Human Capital – number of people certified in new skills <p>Frequency</p> <ul style="list-style-type: none"> ▪Natural Capital – annually at time of Index of Conservation Compatibility evaluation and more thoroughly every 3 years with MUF (community asset mapping methodologies) ▪Social, Physical and Economic Capital – every 3 years ▪Human Capital - annually

Biodiversity and ecosystem services



Without-project scenario

Assessed using existing inventories and literature. Variables discussed are natural vegetation cover, ecosystems, species, endemism and unique species

Description

- Scientists estimated a total of 4000 – 6000 plant species in the park, with at least 12 likely new to science registered in the inventory. Scientists observed 71 large mammal species including bush dogs, spectacled bears, 10 species of primates, and enormous herds of white-lipped peccaries. Bird diversity is pronounced, with more than 600 species registered for the small portion of the

	<p>park that has been inventoried. The 2000 inventory registered 58 species of amphibians and 26 of reptiles. Inventories to date have confirmed more than 175 species of fishes.</p> <ul style="list-style-type: none"> ▪ Deforestation would fragment one of the largest protected areas and one of the last remaining, intact altitudinal corridors in the eastern tropical Andes. Notable reductions in population sizes and declines in species numbers are expected.
With-project scenario	<p>Expected net benefits</p> <p>This project will result in the long-term protection of Cordillera Azul National Park. Given the vast size of the park, protection activities inside the park, and land use stabilization efforts in the buffer zone, no change in the abundance and diversity of the rich biota inside the park is expected to occur due to the project, thus maintaining the high conservation values associated with biodiversity.</p> <p>Possible negative offsite impacts and mitigation strategy</p> <p>No negative impacts for offsite biodiversity are expected</p>
Impact monitoring	<p>Indicators</p> <p>Natural vegetation cover, presence of species locally threatened by hunting, abundance of species locally threatened by hunting, rules of use violations or infractions according to the protection status and zoning of the park</p> <p>Methodologies</p> <p>Satellite imagery for natural vegetation cover, park-guard reports and data from hunters for other variables</p> <p>Frequency</p> <ul style="list-style-type: none"> ▪ Natural vegetation cover – annual ▪ Presence of species – monthly ▪ Abundance of species – quarterly ▪ Rules of use violations – monthly.

Progress



Validation	<p>VCS validation report issue date: 1 February 2013</p> <p>CCBA validation report issue date: 19 February 2013 (Gold Level)</p>
Verification	<p>VCS verification period and report issue date: 8 August 2008 to 7 August 2012; 1 February 2013</p> <p>CCBA verification period and report issue date: 8 August 2008 to 7 August 2012; 21 March 2014</p>
Credits issued	<p>Number: 40,922</p> <p>As of: 27 February 2016</p>

Further information



- Terra Carbon

http://terracarbon.com/projects/summary/pncaz_redd_project/

- VCS Database

<https://vcsprojectdatabase2.apx.com/myModule/Interactive.asp?Tab=Projects&a=2&i=985&lat=-6.487027&lon=-75.347861&bp=1>

- CCBA Database

<http://www.climate-standards.org/2012/09/20/cordillera-azul-national-park-redd-project/>

Documents reviewed

VCS and CCBA: PD, Validation and Verification reports