Kamula Doso Improved Forest Management Carbon Project

Source(s): *Kamula Doso Improved Forest Management Carbon Project*

Project location

- The project area is located in the Middle Fly District of the Western Province of Papua New Guinea, 130 km from Kianga, the Provincial Capital, and 60 km from Balimo, which is the largest settlement within the Middle Fly District (p.17).
- The area is bounded by the Strickland River in the west, the Kisuwe River in the north, the Soari River in the east, the Aramia River in the south and in the north-east by the border with Gulf Province (p.17).
- The leakage zone is the areas under existing government sanctioned timber harvest agreements or timber harvest permits and those that could be released for timber harvest as already proposed concessions (p.37).
- The lowland primary forest in the Kamula Doso project area represents 3% of the primary forest in Papua New Guinea and 39% of the exiting timber concession in Western province (p.76).

Location of the Kamula Doso Forest Carbon Project(p.17)

Forest area and types

- The gross area of the Kamula Doso forest management area (FMA) is 791,200 hectares (p.19)
- The project area is undeveloped natural forest formed on relict alluvial plains with low, closely spaced ridges and narrow swampy valleys under warm, moist tropical conditions (p.18).
- Throughout the project area, mixed tropical lowland forests grow under the moist tropical conditions. There is minimal disturbance from human land use. The dominant forest type is Medium Crowned Forest with canopy height of 25-30m, generally uniform in structure with 60-80% crown closure and high floristic diversity. High value timber species including Araucaria emergents occur throughout this forest type (p.18).

- Other forest types are present within the project area. In the north large (to medium) Crowned Forest with canopy height to 35m and emergents to 50m forms on the well-drained soils of the lower slopes of Mt Bosavi. Dry evergreen forest with open irregular canopy with height 20-25m and emergents to 40m occurs on gently undulating terrain to the south and south west of the project area. In the east and south of the project area Mixed Swamp Forest with irregular open, almost even canopy of very small crowns 20-30m in height occurs on low-lying permanently swampy river back plains and deltas (p.18).

Forest management and use context

- Other than the establishment of home gardens and management of forest areas near to villages for targeted crops (such as sago), the forests are left intact under traditional resource management and used to harvest forest crops, hunt wild animals and collect firewood to a radius of about 12km from villages (p.22).

- The Kamula Doso community represents an integration of smaller village communities. A population of approximately 5,000 indigenous people live in small to medium sized villages, mostly on the peripheries of the project area. Smaller sub-communities or villages are associated on the basis of ancestral language; there are 12 ancestral languages. The organisational structure beneath the sub-community or village level is the clan. Each member of the Kamula Doso community is a member of a clan. Clans are made of 'brother ties' or extended family relationships. These clan associations represent the primary small-holder unit for economic activity and inclusive social obligations. Through a system known as 'wontokism' wealth is distributed through bother-ties (pp.21-22).

- The Landowner Group Incorporation Act 1974, gives legal recognition to conceptions of land ownerships at the clan level. This means that the clan is the driver of all land use and resource allocation decisions. Clans are formed into ILGs in order to exercise their rights of resource management. Each ILG is represented by a custodian. The opportunity for wealth creation is higher for the custodians, as the custodian is the depository for revenue distribution from resource management decisions. While resource diffusion may not be purely egalitarian, every custodian has an obligation to spread the wealth throughout his clan. This obligation is deeply rooted in their tradition and culture. Wages and other resource management opportunities outside of the area give evidence to a small cash economy, however, there are no economic figures for its quantification. A subsistence-based economy exists adjacent to the cash economy. Observations from advisors and WHO assessments of the area show that health services in Western Province of Papua New Guinea experience consistent problems in staffing, supervision and regularity of supplies. The education system in Papua New Guinea provides schooling, but the Kamula Doso community has no formal education infrastructure (p.22).

- The Forestry Act (1991) assigns forest resource rights and responsibilities through so-called Forest Management Agreements (FMAs) between customary landholders and the state. This means forest development rights must be acquired from `willing' landholders (pp.22-23, p.50). The project area comprises the whole of the Kamula Doso Forest Management Agreement Area as demarcated in the National Forestry Plan. The Kamula Doso Carbon Forest Project will prevent logging in the Kamula Doso Forest Management Plan, so the demarcated Forest Management Agreement boundary also represents the Carbon Forest Project boundary (p.17).

- 52 Incorporated Land Groups (ILGs) are the traditional landowners of the Kamula Doso Forest and the resource assets of the Kamula Doso Forest Carbon Project zone. As customary and legal owners of land, ILGs can form themselves into incorporated Land Owner Companies (LOCs) in order to pursue economic development of larger tracts of land. The 52 local ILGs formed such a consortium, and are now represented by Tumu Timbers LOC, as the primary project Implementation Partner (p.11).

- The 52 ILGs with explicit land rights to the Kamula Doso forests have enacted their legal

rights to halt existing logging plans (p.52).

- In 2007, after many months of planning and consultation, the Tumu Timbers board convened a special meeting to formally announce their plans to convert the Forest Management Agreement to a Carbon Project and recognize the rights to carbon sequestered in the project area. The Tumu Timbers Board, on behalf of the land owners, approached and received approval from the Papua New Guinea Office of Climate Change and Environmental Sustainability (OCCES), the Papua New Guinea Forest Authority and (for the avoidance of doubt) the Department of Agriculture notifying them of their intent to cease all other forms of land use for the purposes of generating carbon credits. In October of 2009, the Vice Minister for Environment and Conservation visited clans in the Kamula Doso area, commending the landowners for their decision and relaying the support of Middle Fly District and the National Government for the Kamula Doso Carbon Forest Project (p.11).

Rates and drivers of deforestation and degradation

- The major threat to this biodiversity asset is logging for commercial timber production. Land use change is not extensive as the human population is low and dispersed across the project area. Infrastructure development (roads, towns etc) has been slow due to the remoteness of the area and a scarcity of funds available to central and district governments (p.23).
- Illegal logging is the primary illegal activity that could affect the project's impacts in the project zone (p.51).

Project proponents (p.45)

- Tumu Timber Development Limited (project proponent)
- Nupan (PNG) Trading Corporation Ltd (project developer)

Implementation timeframe

First year for income from net avoided emissions listed in the carbon calculations is 2011.

The project lifetime is 80 years. This is the time required under the baseline scenario to undertake two complete harvest cycles for the project area as defined by the 40-year rotation cycle proposed as sustainable harvest in the FMA. The project crediting period will be 80 years. A revision of the baseline will be completed after 40 years (p.38).

Project goals

High-order objectives (p.11, 32):

- The environmental objective of avoiding large-scale greenhouse gas emissions from deforestation from the commercial timber harvest of Kamula Doso (approximately 37 million tCO2-e of GHG emissions avoided over the next 40 years.)
- The development objective of improving the livelihoods of the Kamula Doso people

Sub-objectives (p.11, 32):

- Ensuring that the forest will remain an important biodiversity "reservoir"
- Enhancing local capacities in natural resource and community management

Implementation activities

(pp.12-14,33-34)

1. Community Project Planning is a key component of project implementation.

Operations will include:

- Develop and implement the plan for the consultation/participation process;
- Develop and implement a detailed capacity building plan for forest asset assessment and monitoring;
- Provide the first wave of resources in the form of immediate needs, indicated by stakeholder engagement during planning; and
- Embolden partnerships between community members and development agencies through micro-finance delivery mechanisms of resources cited above.

2. Establish Governance Systems includes the following operations:

- Prepare the Terms of Reference (TORs) for the Community Development Organisation and its administrative team;
- Appoint the Board of Directors of the Community Development Organisation;
- Write the terms of the Trust Charter;
- Develop a full M&E system;
- As a result of the consultation process, develop a program of community-based projects to be implemented under the Operation phase; and
- Assess the pros and cons of each potential resource distribution channel and decide which ones will be used for this project.

3. Establish Institutional Mechanisms:

- Implement the Natural Resource-Asset Management System;
- Continue implementing the consultation process and the capacity building plan;
- Run the M&E system and provide at least semi-annual M&E reports;
- Prepare annual reports and semi-annual work programs;
- Hold the meetings of the Board of Directors as necessary;
- Trade the carbon credits, prepare the legal supporting documents and the financial reports; and
- Synergise existing processes and land tenure to perform monitoring and control (institutionalises traditional land use control and monitoring and fortifies indigenous ways of life, provides employment and revenue distribution channels).

4. Implement Community-based Development Projects: the detailed development projects will be defined during the first implementation phase, as part of an extended consultation process that will be supported by the capacity building programme. Based on early stakeholder consultation undertaken in Project Planning, a menu of options below will be presented to the community in the Execution Phase:

- Community Education Services: preserves indigenous knowledge and culture through development of learning infrastructure, such as schools, learning tools and teacher training; the curriculum will be determined by the communities as part of the consultation process;

・Primary Health Care: procures medical supplies and provide primary health care training;

・Infrastructure Improvements: facilitates the tools and training to improve community structures and shelters; and

・Alternative Livelihoods: combines the above skills training with entrepreneurial and organization training to create potential for sustainable occupations, trade and lifestyle support activities.

5. Capacity Building: a cross-cutting activity which will include:

・Strengthening of organisational capacity in traditional community groups;

・Supporting the development of human capacity in terms of skills and education;

・Raising the absorption capacity of the community, so that resources can be diffused within the local economy;

・Strengthening indigenous systems for future community development programs; and

・Preserve traditional values and culture.

6. Monitoring and Evaluation: will include:

・Gathering data regarding existing socio-economic data;

・Assessment of current carbon stocks;

・Design and implementation of a biodiversity monitoring plan;

・Design and implementation of a land use control system;

・Implementation of a community impact monitoring program; and

・Development of inroads for feedback mechanisms in governance and institutional arrangements.

Actors' roles and responsibilities (p.45)

Tumu Timber Development Limited (project proponent)	Independent Land Owner Company (LOC) that represents the customary landowners and ILGs that own the land. Tumu Timbers is the legal owners of the resource and has overall responsibility for implementation of the project.
Nupan (PNG) Trading Corporation Ltd (project developer)	Nupan has entered into a Service Agreement and Carbon Trading Agreement with the Project Proponent to provide technical support and commercialisation services. Nupan subcontracts specific aspects of project design, data collection, monitoring and evaluation services and capacity building activities as required to technical experts in forestry, ecosystem management and community led development.

Community participation

• A Project Transition Board will be established in Phase 1 which will function as an intermediary facilitator. The Project Board will comprise key community and external stakeholders. It will be supported by experts in organisation design and implementation of forestry and community development projects. During Phase 2 a permanent Community Development Organisation (CDO) will be identified or established by the Transition Board (p.36). A permanent Community Development Organisation (CDO) will be identified or established by the Project Transition Board. The CDO and its Board will be composed of key stakeholders, experts and administrators who will be tasked to organise the resources generated by the carbon credits to allocate the funds through various

"Resource Distribution Channels (p.15)." Board members will be sourced from the Tumu Timber Board, ILG representatives, international financial experts and NGO expertise/project managers. Strategic decision-making responsibility will remain with the community decision-makers and the Tumu Timber Board. External CDO board members will provide advice and guidance in specific areas of need (p.16).

- The Carbon Trust Fund (the Trust) and its Charter will be created during the community engagement process in Phase 2. The Trust is comprised of mechanisms which govern and execute the distribution of funds to the community at the pace and method determined by the Charter of the Trust. It will be managed by an independent financial intermediary for the sake of the asset owners, the ILGs, in a manner determined by the language of the Charter (p.37).
- The project developer, Nupan has worked closely with Tumu Timbers in designing and progressing efforts for the project to be developed. Tumu Timbers is owned by the 52 ILGs of Kamula Doso. This consultation and engagement process is ongoing and will continue throughout the implementation of the project (pp.42-43).
- The project proponent will recruit from the local communities to fill a number of roles to undertake a) forest inventory, b) biodiversity assessment and monitoring and c) forest protection. The approach will be to select and base staff in the five major villages within the project area (Lake Kembo, Kasigi, Somogoba, Igiagi and Uridie) to be trained and supported by Papua New Guinea staff with technical experience and tertiary education based in Port Moresby. The necessary technical support and training of the trainers will be provided by external consultants (p.81).

Project financing

- The Carbon Trust Fund which will be created during the community engagement process in Phase 2 absorbs fiduciary responsibilities, including the sale of carbon credit assets and the management of financial capital (p.37).
- Project cash flows

Expenditures	**2008-2010 Years 0**	**2011 Years 1**	**2012 Year 2**	**2013 Year 3**
Community Project Planning	$(500,000)	-	-	-
Governance Systems	-	$(200,000)	$(200,000)	$(200,000)
Institutional Mechanisms	-	$(50,000)	$(50,000)	$(50,000)
Capacity Building	$(200,000)	$(300,000)	$(300,000)	$(300,000)
Monitoring and Evaluation	$(80,000)	$(80,000)	$(80,000)	$(80,000)
Total Expenditures	**$(780,000)**	**$(630,000)**	**$(630,000)**	**$(630,000)**

Revenues	**2008-2010 Years 0**	**2011 Years 1**	**2012 Year 2**	**2013 Year 3**
Net Avoided GHGs (tCO20e)*	-	*1,638,498*	*1,665,330*	*1,574,954*
Commercialisation revenues ($5tCO2-e)**	-	$8,192,490	$8,326,650	$7,874,770
Total Revenues ($5 tCO2-e)**	-	**$8,192,490**	**$8,326,650**	**$7,874,770**

*Net avoided GHGs assume a 30% leakage buffer.

** Commercialisation assumes a $5/credit execution price.

Benefit sharing

See sections above on Implementation Activities and Community Participation

Emissions and removals with and without project

Current carbon stocks within the project area

The estimates of current carbon stocks were made using forest inventory data from the Kamula Doso FMA, which was validated through on ground sampling (p.20). It was determined the pre-existing forest inventory data were a conservative estimate of forest stocks and appropriate for use in the GHG accounts (p.27). A mean carbon stock in harvested biomass of 89.67tC/ha is applied to the calculation of all 40 land parcels, which cover a total area of 666,211 ha. The total carbon stock is estimated as 59,739,834 tC (p.21).

Carbon pools included (p.27):

Carbon pools	Included/Optional/ Excluded	Justification / Explanation of choice
Above-ground	Included	At minimum, the stock change in the above-ground tree biomass shall be estimated.
Below-ground	Excluded	Unlikely to change significantly in forests remaining as forests and is difficult to measure. Omission is conservative.
Dead-wood	Included	Required under VCS Tool for AFOLU Methodological Issues[19]
Harvested wood products	Included	Will be greater in baseline than project scenario and significant.
Litter	Excluded	Insignificant and exclusion is conservative.
Soil organic carbon	Excluded	Exclusion is always conservative when forests remain as forest.

Baseline Projections

- The baseline scenario for Kamula Doso is timber harvest under the Forest Management Agreement. Given the project proponents' desire to gain financial return from the forest resource and in the absence of carbon finance the most likely scenario is for the existing Forest Management Agreement (FMA) to be executed, a legal permit to harvest to be issued and timber harvested at a rate of up to 450,000 m^3 per annum. The agreement is for timber harvest on a 40 year rotation of 245,000 ha at a harvest rate of 10m3 per ha and 82,000 ha at a harvest rate of 30m^3 per ha. The project benefits from forest protection would not accrue under selective logging. Harvest practices degrade forest biodiversity and resource value directly through the removal of timber and damage to trees through the process of cutting and transport and indirectly by opening the forest to invasive species, illegal logging activity and natural hazards.

- The baseline carbon stock changes and emissions were estimated using the detailed procedure in the VCS IFM (Improved Forestry Management) LtPF (Logged to Protected Forest) Methodology, which is adapted from the IPCC 2006 GL for AFOLU, and which is currently undergoing validation. *Ex-Ante* estimations use inventory data from the Kamula Doso FMA as well as current IPCC default values where appropriate (pp.26-27, 53).

Selective harvest of timber in the baseline case would see the removal of over 70 m_3 $ha^{-1}$of round logs and pulp logs with chainsaw felling, skidding to bush roads out of forest coups and haulage by trucks to the coast along more substantial but mostly unpaved roads cut for the purpose (p.30).

- Harvest management plan:

A GIS analysis of the project area using base data layers from the Papua New Guinea Resource Information System was used to create land parcels that represent annual cutting units. There are 40 units for the entire project area. A network for logging roads and skid tracks was modelled based on a least-distance method to the access point for each cutting unit. This approach was used to be conservative for road distance in the carbon accounting. Main roads followed the plans of the Aiambak-Kiunga road construction operation in Western Province, PNG. Further analysis of each cutting unit (coupe) was completed using layers for digital elevation, inundation, drainage and vegetation classification to exclude the swamp, slope and riparian zones where harvest is not permitted under the codes of practice. Each cutting unit was also stratified according to the vegetation classification layer. Harvestable volumes by vegetation strata from each cutting unit after exclusions were used in the carbon accounting (pp.77-78).

- Total emissions from the baseline timber harvest scenario

Total emissions from the baseline timber harvest scenario in Kamula Doso (Table 2.3.3) were estimated as the net change in carbon stocks across all pools as a result of timber harvest activities. Annual net carbon stock change is estimated as the stock change from dead wood created during timber harvest and stock change resulting from wood product conversion and retirement, less regrowth in land parcels harvested in prior years.

Baseline GHG emissions under timber harvest (pp.28-29)

Year	Carbon stock change: dead wood (tC)	Carbon stock change: wood products (tC)	Carbon stock change: forest regrowth (tC)	Net Carbon Stock Change (tC) (deadwood + wood products - regrowth)	Net Carbon Stock Change (tC) (Averaged & cumulative)	Net Baseline GHG Emissions (tCO_2-e) (Cumulative)
1	1,188,818	348,288	331,559	1,205,548	1,314,357	4,819,310
2	1,232,123	360,975	334,825	1,258,273	2,628,714	9,638,619
3	1,191,422	349,051	315,244	1,225,228	3,943,071	14,457,929
4	1,214,787	355,896	312,740	1,257,944	5,257,429	19,277,238
5	1,228,560	359,931	307,500	1,280,991	6,571,786	24,096,548
6	1,247,814	365,572	303,395	1,309,990	7,886,143	28,915,857
7	1,238,975	362,982	292,386	1,309,571	9,200,500	33,735,167
8	1,250,760	366,435	286,223	1,330,973	10,514,857	38,554,476
9	1,240,208	363,343	274,939	1,328,613	11,829,214	43,373,786

10	1,011,558	296,356	217,016	1,090,897	13,143,571	48,193,095
11	1,173,127	343,691	243,289	1,273,529	14,457,929	53,012,405
12	1,055,068	309,103	211,261	1,152,910	15,772,286	57,831,715
13	1,291,118	378,259	249,293	1,420,084	17,086,643	62,651,024
14	1,222,119	358,044	227,231	1,352,932	18,401,000	67,470,334
15	733,710	214,955	131,173	817,492	19,715,357	72,289,643
16	1,215,610	356,137	208,634	1,363,112	21,029,714	77,108,953
17	1,120,984	328,414	184,377	1,265,021	22,344,072	81,928,262
18	1,152,914	337,769	181,384	1,309,299	23,658,429	86,747,572
19	1,226,504	359,329	184,191	1,401,642	24,972,786	91,566,881
20	1,202,180	352,202	171,941	1,382,441	26,287,143	96,386,191
21	1,136,127	332,851	154,369	1,314,608	27,601,500	101,205,501
22	1,137,566	333,272	146,430	1,324,408	28,915,857	106,024,810
23	1,090,218	319,401	132,539	1,277,081	30,230,214	110,844,120
24	885,550	259,439	101,324	1,043,665	31,544,572	115,663,429
25	1,167,783	342,125	125,266	1,384,642	32,858,929	120,482,739
26	1,101,182	322,613	110,247	1,313,547	34,173,286	125,302,048
27	1,104,059	323,456	102,640	1,324,876	35,487,643	130,121,358
28	988,124	289,490	84,795	1,192,819	36,802,000	134,940,667
29	1,186,009	347,465	93,296	1,440,178	38,116,357	139,759,977
30	1,104,676	323,637	78,998	1,349,315	39,430,714	144,579,286
31	827,856	242,537	53,282	1,017,111	40,745,072	149,398,596
32	1,070,074	313,499	61,219	1,322,354	42,059,429	154,217,906
33	1,184,502	347,023	59,294	1,472,230	43,373,786	159,037,215
34	1,226,367	359,288	52,620	1,533,036	44,688,143	163,856,525
35	1,234,453	361,657	44,139	1,551,971	46,002,500	168,675,834
36	986,205	288,928	28,210	1,246,923	47,316,857	173,495,144
37	1,171,551	343,229	25,134	1,489,646	48,631,215	178,314,453
38	1,191,422	349,051	17,040	1,523,433	49,945,572	183,133,763
39	1,200,193	351,620	8,583	1,543,230	51,259,929	187,953,072
40	1,216,363	356,358	0	1,572,721	52,574,286	192,772,382
Totals	**45,648,640**	**13,373,669**	**6,448,024**	**52,574,285**	52,574,285	**192,772,381**

Gases considered from emissions by sources other than resulting from changes in stocks in carbon pools

Annual net carbon stock change is estimated as the stock change from dead wood created during timber harvest and stock change resulting from wood product conversion and retirement, less regrowth in land parcels harvested in prior years. Non-CO_2 GHG gasses are included as CO_2 equivalents in the calculations for fossil fuel combustion; all other sources are conservatively excluded. Per the VCS LtPF Methodology, no GHG emissions resulting from project activities exist. (p.54)

Gas	Sources	Included/ Excluded	Justification/explanation of choice
Carbon dioxide (CO_2)	Combustion of fossil fuels (in vehicles, machinery and equipment)	Excluded	Conservative as emissions will be greater in the baseline scenario than in the project case.
	Removal of herbaceous vegetation	Excluded	Based on CDM EB decision reflected in paragraph 11 of the report of the 23rd session of the board: cdm.unfccc.int/Panels/ar/023/ar_023_rep.pdf
Methane (CH_4)	Combustion of fossil fuels (in vehicles, machinery and equipment)	Excluded	Conservative as emissions will be greater in the baseline scenario than in the project case.
	Burning of Biomass	Included	Included as CO_2 equivalent emission
Nitrous oxide (N_2O)	Combustion of fossil fuels (in vehicles, machinery and equipment)	Excluded	Potential emissions are negligible
	Nitrogen based fertilizer	Excluded	Potential emissions are negligible. Following the VCS update to the Tool for AFOLU Methodological Issues and Guidance for AFOLU Projects[20] emissions through the use of fertilizer are considered insignificant and are not considered here
	Burning of Biomass	Excluded	Potential emissions are negligible

Leakage

- There are two types of leakage associated with Improved Forest Management (IFM) projects: Activity Shifting and Market Leakage. As Tumu Timbers only has control over resource use in the project area, activity shifting is not applicable. Market leakage is applicable and must be accounted. The leakage factor is determined by considering where in the country logging will be increased as a result of the decreased timber supply caused by the project (p.56).

- Movements in international demand and timber price are stronger market forces on the harvesting rates and timber production in Papua New Guinea. As these parameters are outside the control of the project proponent, the project proponent is not in a position to mitigate market effects in what is a global market for hardwood saw logs and pulp wood commodities. However, through the project partners media and online promotion of the project and its benefits will be a powerful influence on both international perception towards the use of forest products from primary forests and will influence the government and public perception of forest preservation in Papua New Guinea. The project partners have capacity to influence government perceptions of the value of carbon projects in Papua New Guinea both as a direct lobbyist and through national and international media. The promotion of the value of forest protection has been communicated since the project was initiated in 2007 and will continue throughout the project crediting period. Within the country border, the pre-determination of logging areas precludes leakage, or additional land to be logged. The scope of logging is controlled by the extent and number of FMAs. These have been identified and agreed by government. There is no opportunity for market leakage within the area already designated under FMAs as this project reduces the net area available for logging (pp.56-57、72).

- The project will monitor and calculate leakage ex-post through statistical modelling of expected and realised National Timber Volumes in Papua New Guinea for the baseline and project scenarios. For ex-ante calculations, the VCS National Carbon Stock leakage factor of 30% has been Applied (p.57).

Monitoring

- Project carbon stock changes and GHG emissions estimates are updated every 3 years from monitoring data and subject to re-verification under the VCS (p.53).
- Market leakage will be monitored in this project through analysis of official timber production volumes and through knowledge of timber production activity in Western province (p.72).
- The project design, objectives and activities all ascribe to the principle of empowering the local community as resource owners and managers. Subsequently, long-term monitoring of the project's community impacts – an appraisal of the success or short-comings of the project – should also be owned by the community. In current social impact assessment practice, the participatory rural appraisal (PRA) methodology has a long history engendering principles aligned to the project. The PRA embodies principles of a holistic, all encompassing data collection exercise undertaken through the hands of ordinary people (p.67). Regarding the initial monitoring plan, see the table in page 68.
- Parameters in the GHG monitoring plan and the Biodiversity Assessment & Monitoring Plan will be measured at various intervals no greater than three years to be recorded prior to the submission of GHG accounts at each verification (p.38).
- Biodiversity monitoring within the project boundaries:

  The proposed monitoring plan will select, inventory and monitor biodiversity components and services provided by comparing several indicators (species numbers, incidence of target species and ecosystem health parameters) in the project area and in adjacent harvested forests (p.73).
- The transition to a capital based economy will be monitored as part of the project's long-term monitoring plan (p.39).

Reporting

Verification

Risks and risk management

- Absorptive risk: Well-intentioned community development and aid programs often produce unanticipated negative feedbacks. One common source of negative feedback is the shift from subsistence based economies to capital based economies. The project has the potential to deliver an unparalleled sum of capital into the Kamula Doso economy. The consequences of a cash infusion exponentially greater than the capital economy it enters are difficult to predict. Evidence suggests an array of negative feedbacks and social distress persist when the absorptive capacity of the community currently does not match the potential capital flows from the project. Given that no markets exist for priority resources, predetermined by stakeholder engagement in the planning stage and potential for negative social impacts described above, purely cash distributions will be avoided in the early years of project implementation (p.39).
- Illegal logging: With the project's introduction of a carbon scheme that reduces harvestable areas, illegal logging is expected to become a more pronounced risk. Illegal logging will lead to carbon leakage and likely create social tensions or conflicts between stakeholders, thereby reducing climate, community and biodiversity benefits. In recognising this risk, it is important to note that customary land tenure is traditionally based on sustainable forest management and environmental stewardship.

Community members will naturally assume monitoring tactics against any (illegal) logging behaviour. In order to further mitigate such risks, the project development team and Trust may liaise with the Papua New Guinea Forestry Authority on forest patrolling tactics, for example, the use of fire lines to facilitate rapid movement. The Trust could also provide communities with additional options for consideration such as installing control points at vulnerable access areas or blocking tractor access through trenching (p.40).

- Sovereign risk and potential changes in legislative policy: Despite legal ownership to the land title government programmes or policies could undermine the project's objectives (p.29). This creates potential risks that governments change legislation that could effectively destroy the foundations of the project. The most appropriate mitigation measure would likely involve maintaining good government relations and demonstrating to the government how project outcomes are in line with government development objectives (p.40).

- Mineral resource development: In Papua New Guinea, the government owns the minerals and is entitled to returns from mineral development. The government compensates customary landholders for granting rights to companies to explore and mine minerals. The government could choose to press local landowners to build infrastructure across the project area. For instance, the construction of a gas pipeline across the project area is currently under consideration. The output of Phase 2: Project Transition would create Governance Mechanisms that would include guidelines for development and land-use not connected to Project Activities, yet which occurs in the Project Area. This includes development or compensation for mining activity. The guidelines will educate land-owners as to the available development and land-use activities which comply with the Forest Carbon Project objectives (p.40).

- Low project revenue from sales: Low carbon credit sales price or lack of demand for carbon credits could lead to lower than expected project revenues. To counter such risks, initial project forecasts have been modeled with conservative sales figures. The project developers and the Community Development Organisation (CDO) will ensure that community members are made aware of such financial risks in order to keep expectations in Check (p.41).

- Other risks;

Environmental damage associated with development, e.g. road and infrastructure could lead to environmental degradation. The CDO can counter such risks by training communities to initially conduct environmental assessments prior to the construction of any infrastructure, as well as ensure recovery of degraded areas (p.41).

Improved community wealth is likely to lead to population and agricultural expansion in the project area. The project Resource-Asset Management System will facilitate a culture of asset ownership that guides communities to recognise the benefits of permanent forest conservation (p.41).

Progress and plans

- CCBA status; undergoing validation
- The project is seeking validation under the Voluntary Carbon Standard (p.60).

Links:

Project-related documents

Others

- *CarbonoWontok.org*
- *The Economist(Jun 6th 2009); Papua New Guinea and carbon trading: Money grows on trees:*

Irregular carbon credits cause upheaval in the government of Papua new Guinea
Forest Trends(5 Feb. 2011); AUDITING FORESTRY PROJECTS CURRENTLY "IN PROCESS" FOR COMPLIANCE WITH THE REQUIREMENTS OF THE POLICY, THE FORESTRY ACT AND OTHER REGULATIONS AND GUIDELINES

- *Forest Carbon Portal website*
- *REDD monitor: REDD Projects in PNG "Legally Untenable"*