



Mikoko Pamoja

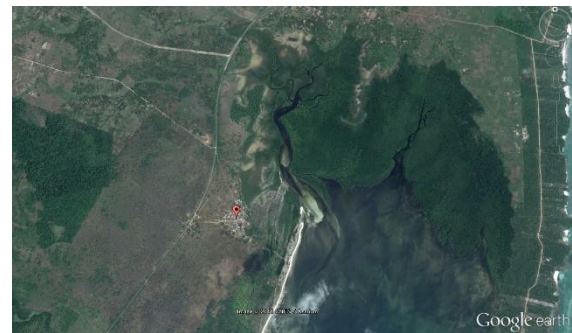
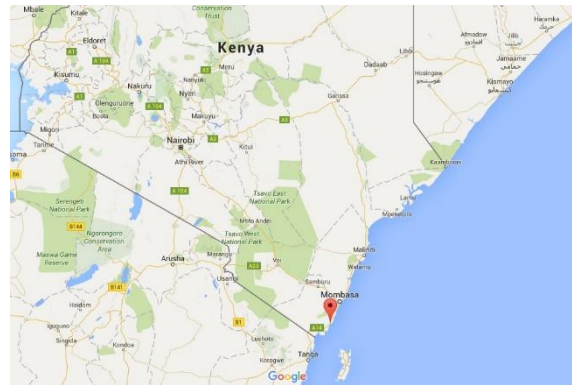
Distinctive features


Mikoko Pamoja is a community-led project in the Gazi Bay area of the southern coast of Kenya, about 50km south of Mombasa. The project will protect 107 ha of natural mangrove forest and 10 ha of plantation mangroves, as well as plant 8 ha of forest to provide wood for local use as a leakage mitigation activity. These forests are located in zones within an expanse of 615 ha of mangroves. In the area there are approximately 5,400 residents in two local villages, Gazi and Makongeni. Livelihoods are provided predominantly fishing, farming and tourism.

The Kenyan government owns all the mangrove forests in the country and legal extraction is limited to individuals and groups with a Kenya Forest Service licence, although illegal extraction is common. The mangrove forests of Gazi Bay have been exploited for many years, especially for building poles and fuelwood. This exploitation continues today and has produced a human-impacted forest with numerous stumps and other indications of cutting. The project will exclude legal cutting from the protected areas and enforce protection from illegal cutting whilst providing woodlots for fast growing trees to prevent leakage.


The proponent is Mikoko Pamoja Community Organization (MPCO), which is a government-registered community organization governed by volunteer office members who are village representatives from the project area. MPCO has partnered with the Association for Coastal Ecosystem Services (ACES), which is a charity registered in Scotland. ACES will hold an independent account from which payments for carbon credits will be transferred to MPCO upon meeting annual targets associated with protection and planting. Carbon benefits are conservatively estimated as 2,500 tonnes CO₂ yr⁻¹, which is derived from a mix of avoided deforestation and degradation, and new planting.

Some income from sales will be used to cover project costs and the net profit will be invested in local projects determined through community consultation. Because mangroves provide a wide range of other ecosystem services, including coastal protection, nursery habitat for fish and water purification, preserving and restoring these forests will have multiple additional benefits.



	Heading	Explanation
Locational factors		
	Location	Gazi Bay, Kenya
	Spatial boundaries	Project area:117 ha Reference area: whole of Kenya Leakage monitoring area: none Leakage management area: leakage management activities are conducted but size of area is not given in Plan Vivo design document
	Land cover	<ul style="list-style-type: none"> ▪Activity area 1: Natural Mangrove forest dominated Rizophora mucronata, with some Ceriops tagal and Bruguiera gymnorrhiza individuals. ▪Activity area 2: Monospecific Rizophora mucronata plantations. ▪Activity area 3: Open beach.
	Agents and drivers of forest cover change	Agents: Local people, immigrants [not clearly listed] Underlying drivers: Not described Proximate causes: Cutting for building poles and fuel wood.

Basic project features

	Objectives	<p>a) To enable Mikoko Pamoja Community Organization to generate revenue from the legal sale of carbon offsets, which are non-timber forest products, to be used for the benefit and general economic and social development of the community.</p> <p>b) To improve the environmental conditions and sustainability of natural resource uses in the Gazi Bay area, including in the villages of Gazi and Makongeni.</p> <p>c) To reduce emissions of carbon dioxide and therefore contribute to global climate initiatives in line with Kenya's national policies.</p> <p>d) To strengthen the sustainable management of mangrove forest according to the Kenya Forest Act 2005, the, subsequent acts and relevant village bylaws.</p> <p>e) To reduce unsustainable forest use, destruction and degradation resulting from activities which are not in accordance with the approved and adopted land use plan.</p> <p>f) To enable Mikoko Pamoja Community Organization to derive revenue from the provision of ecosystem services in the form of carbon offsets through sustainable forest management.</p> <p>[the above objectives are stated in the contract between Mikoko Pamoja Community Organization and Association for Coastal Ecosystem Services]</p>
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<p>Proponent/s</p>	<ul style="list-style-type: none"> ▪ Mikoko Pamoja Community Organization (MPCO) MPCO) – a government-registered community organization that shall coordinate community engagement, routine project activities and benefit sharing. It is governed by volunteer office members who are village representatives from the project area. The office members have the responsibilities of community administration and implementation of project work plans. Project technical work is coordinated by a paid Project Coordinator who plays a key role in the office of the MPCO and provides a link with the Mikoko Pamoja Steering Group.
<p>Actors involved in project design and implementation and their roles</p>	<ul style="list-style-type: none"> ▪ Proponent – role described above ▪ The Mikoko Pamoja Steering Group (MPSG) – provides the necessary technical expertise in biological (carbon accounting) and social (socio-economic monitoring) areas ▪ The Association for Coastal Ecosystem Services (ACES) – a charity registered in Scotland that can hold an independent and transparent account from which payments for carbon credits can be transferred to MPCO upon meeting annual targets. ACES is the Project Coordinator Organisation, responsible for selling Plan Vivo Certificates, overseeing the transfer of funds to the MPCO and reporting to the Plan Vivo Foundation. ▪ Mikoko Pamoja Community Organization: <ul style="list-style-type: none"> Project Technical Operations – Routine monitoring of annual commitments and reporting on these to MPSG and ACES; Policing of boundaries; Regular reporting on project progress and implementation and minuting of these reports; Implementation of work plans Community Engagement/Participation – Participatory Planning, Decision Making and implementation of Mikoko Pamoja activities; Mobilization of villagers for project meetings and activities; Mikoko Pamoja spokespersons for the community during the project activities; Recruiting of MP volunteers for various related community activities; Feedback Barazas (open village meetings) organizers and speakers; Mikoko Pamoja representatives to the Community Forest Association; Facilitate the sharing of benefits from the project by arranging community consultations on priorities
<p>Tenure and Carbon rights holder/s</p>	<p>Tenure: Mangrove forests in Kenya are owned by the government. Responsibility to manage forests in Kenya is bestowed to the Kenya Forest Service (KFS). Through the Community Forest Association, the Gazi community will sign a user agreement with KFS, allowing the community to utilize designated mangrove areas for MPCO.</p>

	Carbon rights: Held by the community as it has the rights to use the mangrove forest. [The right to sell the carbon is with Association for Coastal Ecosystem Services (ACES) under a contract with Mikoko Pamoja Community Organisation. ACES receives payments from the buyers of the carbon credits and allocates these to cover expenses and to Mikoko Pamoja Community Organisation on achievement of targets]
Upfront financing	<ul style="list-style-type: none"> ▪The Swahili Seas research project is funding the salaries of the Kenyan team. This project is funded by ESPA (UK research councils and DfID). ▪Aviva Ltd-Aviva have committed funding for the next 2 years to help with start-up costs. For example, all the costs involved in the Casuarina plantation will be met by these funds. ▪Earthwatch Institute helps to provide research funding and resources.
Start date	1st October 2013 [This date is given as the start of the reporting period in the first project annual report. Project was operational in 2010 according to Plan Vivo website. Official launch of Mikoko Pamoja at village level is June 2012.]
Crediting period	20 years (June 2012 – June 2032)

Baseline emissions



Methodology	Own
Reference data (unplanned deforestation/degradation)	Reference period: 2000-2010 Types of data used: satellite imagery and aerial photography (see Kirui et al., 2011 (cited in Technical Specification Document) for details); published and unpublished data on carbon stocks and biomass dynamics; data from own experimental plots
Reference data (planned deforestation/degradation)	Not applicable
Stratification of project area	3strata: Rhizophora forest, Rhizophora plantations, Casuarina plantation
Deforestation rate and location	<p>Historical: 0.28%</p> <p>Projected: 0.28%</p> <p>Likely baseline scenario Continued harvesting of mangroves</p> <p>Modelling procedure Based on a simple projection of the historical deforestation rate of mangroves across Kenya assessed by the team</p>

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"> ▪ Aboveground tree biomass Data from the following peer-reviewed literature: Kairo, J.G., Lang'at, J.K, Dahdouh-Guebas, F., Bosire, J., Karachi, M. 2008. Structural development and productivity of replanted mangrove plantations in Kenya. <i>Forest Ecology and Management</i>, 255, 2670-2677 ▪ Belowground tree biomass --Data referred to from the following peer-reviewed literature: Tamoo, F, Huxham, M., Karachi, M., Mencuccini, M., Kairo, J.G. and Kirui, B. 2008. Below-ground root yield and distribution in natural and replanted mangrove forests at Gazi bay, Kenya. <i>Forest Ecology and Management</i> 256, 1290-1297. --Based on experimental plot, conservatively assumed 1 t C will be lost for each hectare of trees in Area 1 and 0.32 t C per ha for each hectare of trees in Area 2
Carbon stock changes	<ul style="list-style-type: none"> ▪ Immediate loss of carbon pools from deforestation ▪ Degradation excluded
GHG emissions	None counted
Net emissions without project	4,656 tCO _{2e} [calculated from project technical specification]

Project GHG emissions reduction strategy



Scope	Avoided deforestation and sequestration from forest restoration and reforestation
Activities	<ul style="list-style-type: none"> ▪ Activity 1: will protect existing natural <i>Rhizophora mucronata</i> forest over an area of 107 ha. This area is currently suffering from degradation and deforestation. ▪ Activity 2: will establish two plantations of <i>Rhizophora mucronata</i> of approximately 10 ha in formerly denuded areas.

	<ul style="list-style-type: none"> Activity 3: Replanting of a <i>Sonneratia alba</i> fringing forest of 40-70m depth and 800m length, along a wave-exposed beach.
Leakage mitigation strategy	<ul style="list-style-type: none"> Providing fuel wood and timber for local people and a sustainable source of income for the community fund by establishing non-native woodlot of 3,000 <i>Casuarina equisetifolia</i>.
Non-permanence risk mitigation strategy	<p>Pests and diseases <i>Sonneratia</i> can be susceptible to infestation although this rarely causes death of trees. Beach site trees will not all be planted contiguously, rather planting sites will be spread along 2.5 km.</p> <p>Extreme climatic events, particularly storm events, drought and fire. Severe storms are very rare. Beach site is exposed to wave action which will lead to mortality but this is already assumed in the growth projections. Mangroves are unaffected by fire and much less susceptible to drought than terrestrial forests.</p>
Additionality	<p>Additionality test conducted.</p> <p>Regulatory surplus: Project activities are not mandated by legislation or supported by commercial interests. Although there has been extensive research at the site on mangrove ecology and restoration this has not yet translated into large scale community conservation.</p> <p>Common practice: Illegal and legal extraction of timber and non-timber forest products is common practice</p>

With-project emissions



Effectiveness of measures	100%
Carbon stock changes	<p>DBH of trees in nineteen 10×10 m randomly chosen forest plots in area 1 were recorded. A general allometric equation converted observations of tree DBH into log dry mass: $\ln \text{ dry mass} = \ln \text{ DBH} * 2.55 - 2.29$ (Cohen 2011 unpublished data). An annual growth rate of 5.7% increase in diameter was applied (Langat 2010 unpublished data). As growth may decline with tree size, it is assumed that the growth rate will reduce by 1% for every 3 cm increase over 12cm, until reaching diameters of 21cm beyond which only 1% is assumed. The Biome BGC 5.0 biogeochemical model available for Excel (http://www.ntsug.umt.edu/models/bgc/) was used to provide an alternative assessment of ecosystem productivity. The model predicts productivity ranging from 3.2 – 8.8 t C ha⁻¹ yr⁻¹ at the site depending on the level of osmotic stress (caused by salinity) in the soil.</p> <p>Activity area 2. Rhizophora plantations</p>

	<p>A total of 4.5 t C ha⁻¹ yr⁻¹ is assumed as for the natural forest.</p> <p>Activity area 3. Sonneratia plantation on the open beach</p> <p>Propose planting 5000 trees yr⁻¹ over an area of 0.4 ha per year for 20 years with expected mortality of 40%. Assumed that these trees will reach a productivity of 4.5 t C ha⁻¹ yr⁻¹ once they are 12 years old. Cumulative carbon captured over twenty years, based on these growth assumptions and an extra 0.4 ha planted per year, gives a mean of 11.1 t C yr⁻¹ captured.</p> <p>Expected change in belowground carbon stocks with project activities</p> <p>A root production: shoot production ratio of 0.15 assumed; hence new belowground carbon stocks in all of the activity areas are calculated as 0.15 times the aboveground productivity.</p>
GHG emissions	None are counted
Leakage	<p>Types</p> <p>Activity shifting: Project activity could lead to increased harvesting in other areas to meet demand for timber and fuel-wood [no further analysis]</p> <p>Deduction: 0 tCO₂e</p>
Non-permanence risk	Buffer: 15%
Ex-ante estimated net greenhouse gas emissions reductions	<p>Total over crediting period: 156,292 tCO₂e</p> <p>Annual average: 7,815 tCO₂e</p> <p>Annual average per ha: 62.5 tCO₂e</p>
Monitoring of carbon stock changes and emissions	<p>Parameters</p> <p>Area 1 and 2</p> <ul style="list-style-type: none"> ▪ i. Stumps ▪ ii. Recovery – forest structure and diversity <p>Area 3</p> <ul style="list-style-type: none"> ▪ iii. No. trees planted ▪ iv. Mortality of 3-year-old trees <p>Methods</p> <ul style="list-style-type: none"> ▪ i. 5 random 100 m transects; observation of clear cutting ▪ ii. 10 representative plots <p>Frequency</p> <p>Annual and 3 years</p>

Stakeholder identification and engagement



Stakeholders identified

Residents of the Gazi Bay area. This involves the two largest villages in the area, Gazi and Makongeni. The combined population of the two villages is

		approximately 5,400 persons, with Gazi village having 60% of this total.
	Identification process	Survey of baseline socio-economic situation in the project area
Full and effective participation		
	Access to information and consultation	<ul style="list-style-type: none"> ▪ Access to information and consultation to community members are provided through Mikoko Pamoja Community Organization (MPCO). ▪ Full accounts for Mikoko Pamoja will be publicly available, on the website and posted on village notice-boards as well as tabled at the annual MPCO confirmation meeting.
	Participation in design, implementation and monitoring	<p>[Following roles of Mikoko Pamoja Community Organization are evidence of participation]</p> <ul style="list-style-type: none"> ▪ Routine monitoring of annual commitments and reporting on these to MPSG and ACES ▪ Policing of boundaries ▪ Regular reporting on project progress and implementation and minuting of these reports ▪ Implementation of work plans ▪ Participatory Planning, Decision Making and implementation of Mikoko Pamoja activities ▪ Mobilization of villagers for project meetings and activities. ▪ Mikoko Pamoja spokespersons for the community during the project activities. ▪ Recruiting of MP volunteers for various related community activities. ▪ Feedback Barazas (open village meetings) organizers and speakers. ▪ Mikoko Pamoja representatives to the Community Forest Association. ▪ Facilitate the sharing of benefits from the project by arranging community consultations on priorities and ensuring fairness and equitability in distribution of funds
	Feedback and grievance redress procedures	No information
	Worker relations and safety	The MPCO will be responsible for recruiting and helping to train (with technical assistance) the relevant work groups including: nursery teams, monitoring teams, community reporters and woodlot maintenance and marketing workers.
Communities		
	Without-project scenario	<ul style="list-style-type: none"> ▪ There will be no system for financing ecosystem service payments.



	<ul style="list-style-type: none"> ▪ Impacts of individual funded projects (supported by community funds) is zero. ▪ Community can't get any technical support.
With-project scenario	<p>Expected net benefits</p> <p>Implementation of Mikoko Pamoja will change the use of these areas principally by reducing or eliminating the illegal extraction of wood from all the areas (since there will be community vigilance around extraction). Fishing activity will not be affected (other than benefiting in the long term from better ecosystem quality). Activity area 1 will become inaccessible for legal cutting and the legal quota will be reduced to reflect this. Trees replanted in activity area 3 will, with time, help protect the adjacent agricultural land against shoreline erosion.</p> <p>Income through carbon credit sale.</p> <p>Possible negative impacts on other stakeholders and mitigation strategy</p> <p>Not discussed</p>
Impact monitoring	<p>[Mikoko Pamoja Community Organization appears responsible for monitoring. The following are in addition to the indicators monitored by MPCO for the performance-based payments]</p> <p>Indicators</p> <ul style="list-style-type: none"> ▪ i. Number and vitality of mangrove-related local businesses ▪ ii. Impacts of individual funded projects (supported by community funds) <p>Methodologies</p> <ul style="list-style-type: none"> ▪ i. Annual reviews of numbers of businesses and relevant income ▪ ii. Specific to individual schemes. Each prioritised expenditure will require a specified and measurable output (eg construction of a school building) <p>Frequency</p> <ul style="list-style-type: none"> ▪ i. Annual ▪ ii. Specific to output

Biodiversity and ecosystem services




Without-project scenario	Currently typical Mangrove fauna and flora are present but degraded. The degradation will continue.
With-project scenario	<p>Expected net benefits</p> <ul style="list-style-type: none"> ▪ Activity area 1 <ul style="list-style-type: none"> • Restoration of high quality natural mangrove forest will benefit all the resident mangrove fauna and flora. • Conservation will enhance coastal protection and sediment stability.

	<ul style="list-style-type: none"> • All relevant mangrove ecosystem services, including fisheries provision and sediment capture, will be enhanced. ▪Activity area 2 <ul style="list-style-type: none"> • Protection of mangrove plantation will benefit all the resident mangrove fauna and flora and allow natural successional processes to occur. • Conservation will enhance coastal protection and sediment stability. • All relevant mangrove ecosystem services, including fisheries provision and sediment capture, will be enhanced. ▪Activity area 3 <ul style="list-style-type: none"> • This formerly forested area has become an eroding beach. Tree replanting will help restore biodiversity • The coastal strip is suffering saltwater intrusion; a restored mangrove forest will help prevent this • Coastal erosion is severe in this area and will be mitigated or prevented by mangrove planting • This area is important for a range of coastal birds including bee-eaters and orioles that will benefit from forest expansion <p>Possible negative offsite impacts and mitigation strategy None mentioned</p>
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Impact monitoring	<p>Indicators</p> <ul style="list-style-type: none"> ▪i. forest structure and growth, including recruitment of new trees ▪ii. Fauna, especially crabs in protected areas ▪iii. Soil conditions: sedimentation rates and surface elevation in protected area and degraded beach plots <p>Methodologies</p> <ul style="list-style-type: none"> ▪i. Representative plots ▪ii., iii. Not described <p>Frequency</p> <ul style="list-style-type: none"> ▪i. Regular ▪ii. Every 3 years ▪iii. Not described
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Progress

	Validation	Annual Reports 2013, 2014 submitted Plan Vivo validation report issue date: 24 January 2014
	Verification	Plan Vivo verification due 2018
	Credits issued	Number: 2,125

As of: 16 February 2016 [from check on Plan Vivo website]

Further information



- Plan Vivo Database:
<http://www.planvivo.org/project-network/mikoko-pamoja-kenya/>

Documents reviewed

Accessed from Plan Vivo Database

- Plan Vivo Project Design Document
- Validation report
- Annual reports
- Project Technical Specifications