Technical specification   FOR-MAN

System: Forest management and conservation

Summary[1]
Conservation and sustainable management of existing forests and implementation of activities that reduce pressure on these areas. The potential to offset carbon is equal to the predicted rate of carbon loss based on a regional baseline matrix parameterised with local data.

Management objectives
The management will aim to conserve the existing area of forest cover within the community. This will entail two separate types of activity: forest management and sustainable land use planning. Forest management may include conservation and sustainable forest utilisation activities. Sustainable land use planning will aim to reduce pressures on forest resources through the implementation of improved land management activities in the community, for example, the creation of plantations to provide fuel and timber and the use of agricultural techniques that improve productivity and conserve soil fertility. In order to be successfully registered the Plan Vivo will not necessarily have to include all these activities but demonstrate that sufficient provision has been made to ensure that standing carbon stock in community lands is protected or enhanced.

Management operations
The following will be required in addition to the Plan Vivo:
- an accurate map of the entire forest area, noting forest type, condition and ownership,
- a statement of community intent to abide by all the activities stated in the Plan Vivo

a. Forest management component
Procedures for implementing forest management plans must be established. They should include procedures for ensuring rules concerning allowable activities are respected, procedures for delineating boundaries, and procedures for protecting areas from fire. The people responsible for ensuring these procedures are followed and actions that will be taken if they are contravened should be stated.

Conservation
The area designated for forest conservation will have to be marked on a map and physically demarcated in the forest. The selection of the conservation area could be based on cultural, biological or physical criteria. The conservation area should not be the most degraded area, as both carbon and biodiversity benefits will be low, this would also raise issues as to how the area would be protected once fully restored. Allowable activities in the area must be clearly stated. If these activities include the harvesting of woody products e.g. fire wood an assessment of the effect on carbon stocks will be required. If, however, only non-woody products (e.g. flowers, fruits, fungus etc) are harvest the effect on carbon stocks may be considered to be negligible.

Forest utilisation
The area designated for timber and fuelwood harvesting should be marked on the map. An approved management plan will be required, this should include details of predicted growth and yield and harvesting plans. The management plan should include detail of how

regeneration will be encouraged with particular emphasis on commercial species and how the biological functions of the forest will be maintained.

b. Sustainable land use component
The Plan Vivo should include details of what area each activity will take place in and over what time scale it will be implemented. The plan should also show how the system will be maintained and who will be responsible for organising and carrying out activities.

Plantations
The community should demonstrate that domestic timber needs are met and that commercial timber production may be carrying out sustainably. Creating plantations or carrying out enrichment planting with commercial species may be required to achieve this aim depending on the standing volume of commercial species in existing forest.

Improved agriculture
The aim of this element of the Plan Vivo is to demonstrate that the increase in demand for new agricultural land will be controlled through activities that increase the productivity and sustainability of current agro-pastoral production. The nature of these activities will depend on the needs of the community and will be decided through discussions between technicians and community members.

Calculation of carbon benefits
The calculation of carbon benefits is based on a regional analysis of the relationship between land use change and certain key socio-economic and environmental causal factors (for example population density, distance from roads and agriculture). This analysis is used to generate a 'risk matrix' that defines the risk of deforestation over a stated period for areas with defined socio-economic/environmental characteristics. This risk matrix is applied to the area under the forest management plan vivo to calculate the expected rate of deforestation in the future and the expected carbon emission is calculated from the vulnerable carbon stocks in the vegetation in question. A risk buffer based on the error observed in the application of the model over a similar spatial scale is then applied top calculate saleable carbon credits from the activity.

Calculations for specific areas are given in technical appendices to this specification.

Monitoring
Monitoring indicators will depend on what type of activities the community is planning but will be based on the implementation of planned management activities and establishment of structures and procedures necessary to ensure management objectives are realised.

Forest management component

Year	Indicator
1	Demarcation of forest areas Establishment of management and fire teams
2	Fire breaks 50% complete
3	Fire breaks 100% complete
5	Forest area boundary maintained – no loss of forest cover Condition of conservation area - verify that only allowable activities are carried out Forest management proceeding as planned – check harvest records Lack of conflict from social monitoring
10	Forest area boundary maintained Condition of conservation area Forest management proceeding as planned Lack of conflict from social monitoring
15	Forest area boundary maintained Condition of conservation area Forest management proceeding as planned Lack of conflict from social monitoring

Sustainable land use component

Year	Indicator
1	Land management and plantation activities 20% complete
2	Land management and plantation activities 40% complete
3	Land management and plantation activities 60% complete
5	Land management and plantation activities 100% complete
10	Plantation maintained
15	Plantation maintained

Technical Appendix 1

FOR-MAN-Corona
System: Forest management and conservation
Variation: Community of La Corona

Background Information
Region: Marques de Comillas, Selva Lacondona
Vegetation type: Tropical lowland humid forest
Total area of community: 2274 ha

Carbon offset potential

Vulnerable carbon stock in La Corona
The vulnerable proportion of the standing carbon stock may be calculated the difference
between the vegetation type in question and the carbon stock of agriculture/pasture.

Vegetation	Vulnerable carbon per ha (tC/ha)	Area (ha)	Vulnerable carbon stock (tC)
Forest	325	1,238	273,940
Tree fallow	140	332	34,477

Predicted carbon loss
The predicted loss of carbon due to land use change in the absence of the project is calculated
basic upon the relationship between deforestation and two key causal factors (population
density and distance from roads) observed over the last 20 years.

Rate of deforestation in the Marques de Comillas region over the last 20 years in areas with
the following characteristics:

	Distance from roads (m)		
Population density (/km2)	0-500	500-1500	>1500
0	65.2%	41.8%	18.9%
0-20	48.1%	32.1%	24.8%
20-40	42.0%	27.5%	23.3%
>40	36.0%	21.8%	15.6%

Expected loss of carbon from forest areas in La Corona due to deforestation over the next 20
years in areas with these characteristics:

	Distance from roads (m)		
Population density (/km2)	0-500	500-1500	>1500
0	0	0	0
0-20	1,802	1,409	0
20-40	7,34	15,122	8,829
>40	21,311	10,467	13,017

<u>Carbon offset potential</u>
The total predicted loss of carbon from La Corona over the next 20 years is 78,991 tC. Based on an analysis of regional variation in the results of the model used to predict carbon loss a 50% risk buffer is applied. The carbon offset potential form conserving forest resources in La Corona is therefore 39,500tC over the next 20 years.

References
Castillo, M.A., Hellier, A., Tipper, R. and de Jong, B.H.J. 2002. Carbon emissions from land-use change: a regional analysis of causal factors in Chiapas, Mexico. Submitted.

Hellier, A., Castillo-Santiago , M.A., Tipper, R. and de Jong, B.H.J. 2002. Constructing regional baselines for carbon emissions from land-use change in Chiapas, Mexico. Submitted