Fact sheet

Pro-poor analysis of REDD+ activities designed to tackle drivers of deforestation and forest degradation in the Yucatan Peninsula

The objective of this report is to evaluate the potential for pro-poor approaches considering the expected environmental effectiveness of different REDD+ strategies for tackling drivers of deforestation and forest degradation in the Yucatan Peninsula, assessing the impacts of each of these strategies on different local social groups, and considering in what ways benefits could be most equitably distributed.

1.3 Methodology

The methodology adopted to prepare this work includes the extensive review of the literature and consultation of socioeconomic and demographic statistics, the interview to key informants from the three states of the Yucatan Peninsula and direct observation on the field. The study strongly relays on field trips from May 2014 to March 2015.

Different communities and regions were chosen because they presented specific dynamics related to the drivers of emissions, these include: commercial and subsistence agriculture; urban development; firewood collection and charcoal production; grazing; hurricanes; and unsustainable forest management. Based on the description of the different drivers, we made an assessment of which stakeholder groups are involved in each driver. These stakeholders are characterized as 'poor' or 'non-poor'. Later we identify the policy options available that can be used to address each of the typical drivers of emissions from deforestation and forest degradation. Then analyzed and assessed each policy option. Finally, REDD+ activities and policies are analyzed identifying the potential niches for implementation and for pro-poor benefit sharing schemes.

1.3.2 Pro-poor approaches
The evaluation of pro-poor approaches for REDD+ benefit sharing made in this work considers two aspects: first the design of the interventions to address drivers of emissions and secondly the impact these can have in poorer groups. In this context pro-poor potential of REDD+ interventions can be evaluated in terms of the changes in the income of poor households.

2. Identification of drivers of deforestation and degradation in Yucatán Peninsula
There have been more academic studies on these in the Yucatan Peninsula than in almost any other region in Mexico, perhaps because of international interest in the Mesoamerican Biological Corridor. And the results are also different and even contradictory. The main direct and indirect drivers identified in the Yucatan Peninsula are taking into account to identify stakeholders, the drivers involved and the impact on the poor.

The original document describes, for each activity, examples of selected ejidos and typical characteristics of the activity in the Yucatan Peninsula region.

Table 3. Summary of drivers of emissions

Type	Drivers
Direct	
Deforestation	Commercial Agriculture; Cattle Rearing; Urban Expansion; Infrastructure; Mining (small scale).
Degradation	Shifting Cultivation (subsistence); Overgrazing; Natural disasters (Hurricanes and fires); Unsustainable Forest Management; Firewood Extraction; Charcoal Production; Forest Diseases and Pests; Illegal Logging.
Indirect	
Demand Side Factors	International markets; Commodity prices; Population growth; Demand from domestic markets; Land grabbing; Speculation (foreign investment).
Institutional Factors	Poor governance enforcement and coordination; Corruption; Land tenure uncertainty; Inadequate planning/ management; Conflicting policies; Poor capacities; Leakage; Perverse subsidies; Low institutional presence; Lack of local rules for management and conservation
Local Socioeconomic Factors	Poverty; Poor capacities; Lack of investment and competitiveness of forest sector; Unemployment (off-land income); Migration and labor opportunity cost; Risks and perceptions; Savings and liquidity; Land availability (age, ejido size, population); Distance to forest.

3. Identification of actors

Balderas et al. (2015) briefly describe the characteristics of the different stakeholders identified dividing them according to cash and subsistence activities:

Actors of Subsistence activities	Actors of Primary producers oriented to cash activities
Immigrants, landless	Immigrants (empowered; technical knowledge; mechanized activities)
Avecindados, formally landless	Ejidatarios, posesionarios or comuneros (cash activities)
Young population, landless	Local cooperatives
Women head of household	Private landowners
Old Ejidatarios	Community forest enterprise (ejido, local technicians, machinery operators, drivers, brigades, sawmills)
Small-scale cattle-rearers, landless	Large-scale ranchers
Ejidatarios	Ejido committees and leaders of cooperatives
Individual charcoal makers, landless	
Individual timber loggers (small-ejidos)	
Individual chicleros (chewing gum producers, ejidatarios)	

Based in their productive factors/assets, the study divides the actors into 2 groups: poorer and better off non-poor. However, the main differences between local poorer and non-poor actors are related to their land access and whether their activities are connected or not to markets favoring capitalization and investment.

Table 4. Summary of main actors and productive factors/assets

Actors	Main Productive Factors/Assets of Group of Actors
Poorer groups	
Immigrants, landless	Labour and access to areas to extract firewood
Women heads of households , landless*	Cattle, labour, land and remittances (*husband)
Residents *avecindados*, landless	Labour, recognition by *ejido* authorities (legal rights access to subsidies, not to land)
Elderly people	Land*, Labour*
Young dwellers, landless	Labour
Small-scale cattle-rearers, landless	Cattle, Labour
Resident, with land access, subsistence agriculture	Labour, land access, fallow*, beekeeping*
Community landowners/ *ejidatarios*, subsistence agriculture	Land, land certificate (share, subsidies) labour, fallow, beekeeping*
Communities/*ejidos* with timber production	Land, labour, land certificate, forest, management permit, chewing-gum production*
Better-off/Non-Poor	
Commercial agricultural producers (*ejidos*/private)	Land, labour machinery, irrigation, capital for reinvestment
Community/*ejido* authorities	Institutional networks
Large-scale cattle-rearers	Cattle, grassland, capital for reinvestment
Technical foresters	Institutional networks, brokers for public programmes
Intermediaries of timber, charcoal, firewood, honey, beef, crops, chewing gum.	Infrastructure, transport, scale of activities, market access, capital for reinvestment
Land-brokers	Information, networks
Firms processing primary products	Infrastructure, transport, scale of activities, market access, capital for reinvestment
Investors	Access to capital, evaluation skills
External consumers	

The study continues with a multi-criteria analysis of the constraints to poverty, critical media, livelihoods capital (social, human, productive, natural) and activities to assess conditions in poor households. The results are a set of main assets, benefits and conditions contributing more strongly to the development of poorer groups. The first five factors with the highest mark are: knowledge and implementation of intensive agroforestry practices; the formal access to land rights; strong and effective institutional presence in different areas (e.g. health, education, agriculture, forestry); individual empowerment and motivation; and access to water and irrigation.

4. REDD+ interventions to reduce emissions and increase carbon stocks

Balderas et al. (2015) describe actions and regional conditions to implement them:
- Alternatives for reducing emissions from deforestation (sustainable management of forests, agroforestry, sustainable silvopastoral management and zero tillage).
- Alternatives for reducing emissions from degradation (Milpa maya, charcoal production, sustainable firewood).
- Alternatives for contributing to carbon enhancement, the sustainable management of forests and conservation of carbon stocks.
- Potential carbon savings.

Based in these options, qualitative characterizations of potential carbon gains could be attained for each of the drivers of emissions identified and described in CIGA's analysis. For each driver, potential carbon benefits associated to reduced deforestation and/or forest degradation are described as high, medium or small considering the expected carbon gains per hectare and the area for intervention. This characterization will be used later to prioritize the best pro-poor interventions.

Drivers and other activities	Carbon Emission/ Removal Process	Relative potential carbon gains per ha	Potential area for intervention
Commercial agriculture	Deforestation	High	High
Shifting cultivation, subsistence agriculture	Degradation	Medium	High
Cattle rearing and pasture development	Deforestation	High	High
Firewood collection	Degradation	Small	High
Charcoal Production	Degradation	Small	High
Hurricanes	Degradation	High	Medium
Urbanisation	Deforestation	High	Small
Public programs and subsidies	Deforestation	High	High
Unsustainable forest management	Degradation/ Deforestation	Medium	High
Land trade and speculation	Deforestation	High	High
Ineffective governance schemes	Deforestation/ Degradation	High	High
Activities			
Forest Management	Carbon conservation, enhancement of stocks and SMF.	Medium	High
Carbon Sequestration Practices	Reforestation, afforestation and restoration of degraded forests and other land uses	High	High

Although the magnitude of potential carbon gains from reduced deforestation is higher than for degradation there are inherent difficulties to design incentive based policies to control it. The baseline for deforestation needs to be built at a regional level to obtain a probability of deforestation, or the percentage of forest that is expected to be lost in one given year. This implies that it is not possible to know exactly which area of forest would have been lost without an incentive policy. Therefore, all the area under the same level of threat (baseline) would have to be considered equally.

Another conclusion that can be drawn from this analysis is that the geographical indetermination of deforestation diminishes the resources available to provide incentives for a specific hectare under threat. Additionally, if we consider that opportunity costs of activities driving deforestation are typically much higher than such modest payments, thus these efforts might be ineffective. In this context, strategies to address degradation offer a huge advantage, since it can be assessed at the management unit or per hectare level, carbon gains from reduced emissions can be determined for each individual parcel. Resources can be targeted more effectively to address drivers of degradation. However, there are challenges to ensure that a sustainable management is given to forests and emissions do no restart once any payments for reduced emissions are suspended.

5. Opportunities to design pro-poor benefit distribution systems in Mexico

Considering the advancements for the implementation of REDD+ early actions in Mexico, the potential for poverty alleviation relates to two dimensions. First, to the design of interventions that can be implemented to address each of the drivers of emissions and how these are selected for implementation in poorer or better-off areas. Secondly, the ad hoc scheme for the distribution of the financial value of carbon benefits in REDD+.

In general the potential of pro-poor REDD+ interventions can be devised by first identifying in which drivers it is more likely to target the poor. Also, by evaluating the impact that specific interventions proposed to address the drivers can have on the livelihoods of the poor. Table 11 presents a general evaluation of pro-poor approaches considering the general drivers described in this document. Each driver is evaluated qualitatively in terms of the potential carbon gains that can produce per hectare if tackled effectively, the potential area for intervention in the Yucatan Peninsula, the relative costs to address it and the potential to address the poor. Each factor is evaluated with a factor of 1, 2 and 3 for small, medium and high, respectively (the values for the costs are in reversed order).

Driver	Emission Process	Potential Carbon Gains per ha	Potential Area for Intervention	Relative Costs	Target Poor Groups	Weighted Value	Hierarchy
Shifting cultivation, subsistence agriculture	Degradation	Medium	High	Small	High	2.75	1
Commercial agriculture	Deforestation	High	High	Medium	Small	2.25	6
Firewood collection	Degradation	Small	High	Small	High	2.50	3
Charcoal Production	Degradation	Small	High	Small	High	2.50	3
Cattle rearing and pasture development	Deforestation	High	High	Medium	Medium	2.50	3
Forest management	Degradation/ Deforestation	Medium	High	Medium	Medium	2.25	6
Urbanisation	Deforestation	High	Small	High	Small	1.50	10
Ineffective Governance Schemes	Deforestation/ Degradation	High	High	High	Medium	2.25	6
Public programs and subsidies	Deforestation	High	High	High	Small	2.00	9
Hurricanes	Degradation	High	High	Medium	High	2.75	1

The drivers that more easily can target the poor are shifting cultivation (subsistence agriculture), hurricanes, firewood collection, charcoal production and cattle rearing and pastureland development (particularly small-scale cattle-rearing and clearings for the rental of pastureland).

Another option to develop pro-poor actions is by aiming to control pastureland development especially in the area of Calakmul and La Montaña. This is a poor region where land conversion is linked to emigration dynamics and labour scarcity (pastureland rental). Most of the inhabitants are immigrants without prior knowledge of local best sustainable practices and may not know other alternative development options.

Lastly, another option to target poor actors relates to initiatives **targeting selective logging in forest ejidos, especially small ejidos or ejidos with small forest areas** with poor CFM governance (in Campeche and Quintana Roo). Degradation in these areas occurs due to the lack of control of extraction fronts. Additionally, when forests are no longer economically attractive, this is when valuable species are gone, the distribution of forests in small patches prevent economies of scale and silvicultural management and thus the risk of deforestation is higher.

Although the activities associated with the drivers of deforestation emit more carbon per hectare and in the short-term can produce higher gains than those related to degradation it is necessary to assess the extent of the area where these processes take place.

Specific REDD+ interventions and potential impact on the poor

A list is presented of potential REDD+ interventions that could be implemented in the Yucatan Peninsula to address the drivers of emissions based on the identification of drivers, actors and niches for implementation (Table 13). The latter is similar to the section regarding opportunities to design pro-poor benefit distribution systems by assessing the impact the activities can have in poor groups.

Table 13. REDD+ interventions with highest pro-poor potential.

REDD+ Intervention	Pro-Poor Potential	Hierarchy
Micro-insurance schemes for housing, milpa, CFM, honey production, cattle, chewing gum	22.0	1
Community land use plans (including, areas for charcoal and firewood production; reforestation, restoration; communal parcels)	19.5	2
Regularisation of land access (recognise avecindados)	13.2	3
Promote community enterprises/cooperatives managed by specialised groups	11.0	4
Technical support for different steps in production chain (local small scale industry, family workshops)	11.0	4
Contingency plans and shelters	10.5	6
Increase size of solares in ejido population centers (community land use plans)	10.5	6
Poverty alleviation subsidies	10.5	6
Health and education subsidies	10.5	6
Best practices for milpa production (fallow, soil, water management)	9.0	10
Agroforestry practices in parcels and solares	9.0	10
Saving and investment strategies compatible with sustainable practices	8.0	13
Micro-credits	8.0	13
Improved cookstoves	7.5	15

6. Conclusions

The potential contribution of REDD+ to poverty alleviation in the Yucatan Peninsula raises challenges as in general it is not the local poor who are causing carbon emissions on a per capita or per ha basis, but primarily better-off groups. Additionally, poorer groups are also immersed in processes reducing their productive assets (e.g. soil degradation and land sales). REDD+ can promote the implementation of pro-poor activities and include pro-poor considerations for the distribution of performance-based carbon benefits.

If REDD+ activities are to be pro-poor they would have to promote productivity, technology transfer and access to markets for poorer groups. Activities increasing the productivity of subsistence farming without increasing forest degradation could benefit a large number of the relatively poor, and enhanced local management and governance would benefit all, including the poor. These actions can also help to add economic value to sustainable practices allowing reinvestment and recapitalization. In the long run, activities improving land access could be important for reduction of poverty but this is a complex area of intervention. under current REDD+ plans.