A Carbon Fund to Reduce Deforestation and Improve Living Conditions of population in the Sangha Tri-National forest complex

Project K: RedLAC-CAFÉ Knowledge for Action Project

Fund:

Sangha Tri-National Trust Fund (FTNS)

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Case Study

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1. Executive summary

Sangha Tri-National Trust Fund (FTNS) designed the project to put in place a carbon fund which will contribute to the sustainable management of community forests surrounded TNS national parks through a mechanism based on payment of carbon credits sold in the voluntary carbon market. The implementation of the project includes support to community to adopt best agricultural practice and reduce deforestation, quantification of carbon stocks to generate by community based on their effort towards forest conservation and certification of carbon to generate by an international standard operating in the voluntary market of payment for environmental service (PES).

The mechanism is innovative in the region and to keep a participative approach as required by international standard, it needs a lot of capacity building and communication that may affect the initial timeframe for project implementation. Collaboration with national authorities while implementing the project within an unclear legal framework is crucial and sometime required much works than expected.

Although it is still early to talk in terms of financial impacts and benefits for conservation, we observed that many capacities building have been achieved in various aspects. Community members became more conscientious concerning the limitation of forest resources thanks to sensitizations organized. They also received lots of supports in agroforestry which can enable them to reduce pressure on the forest and improve their livelihoods. The project also succeeded to be registered as potential producer of carbon in the voluntary market. The practical link between conservation and financial benefits is quite attractive for local community and could really bridge the gaps between environmental funds (or organization) and local community.

2. Background

As a result of the political commitment of Heads of State for the conservation and sustainable management of forests in Central Africa, the Tri-National Sangha Complex (TNS) covers an area of 4.4 million hectares between the Republic of Cameroon, the Central African Republic and the Republic of the Congo. The TNS has

become since July 2012 UNESCO World Heritage Site. A genuine carbon sink and an important biodiversity reserve, TNS includes an integral protection zone in which there are three contiguous protected areas extending over 767 200 ha and a buffer zone of 3 632 000 ha in which participatory processes for the sustainable management of forest and wildlife resources are developed.

In March 2007, Sangha Tri-National Trust Fund (FTNS) was established to ensure sustainable funding for the conservation of protected areas and the sustainable management of forest resources in the buffer zone. To date, significant funding has been raised by FTNS to support the conservation actions of the three protected areas. However, these are insufficient to cover the very important needs of sustainable development of the populations living in the buffer zone of protected areas and to encourage sustainable practices for the management of forest and wildlife resources.

With a population of nearly 191 000 inhabitants, the TNS buffer zone is subject to degradation and deforestation, emitting CO2, with the main factor being slash and burn agriculture, which provides most of the income to a population living in majority under the poverty. The rate of deforestation, considered low between 1990 and 2000 (0.18%), almost doubled in the decade 2000-2010 (0.32%). The expansion of agricultural lands, which also encourages illegal logging and wildlife exploitation from degraded fallow land and forests, is expected to increase further due to the installation of the timber extraction industries and the Population growth in the surrounding large cities.

At international level, there was a great mobilization to fight against climate change after the Earth Summit held in Rio de Janeiro in 1992. In 2005, in Costa Rica during the UNFCCC COP-11, the concept of RED emerged and has evolved to become REDD+ in 2009, during the UNFCCC COP-15 in Cancun. From this time, many financial mechanisms engaged in funding REDD+ process in several countries. The Congo basin countries were eligible to these mechanisms. The most important ones were the GEF, WB and UN-REDD which have been strengthened with the GCF created in 2009. Many others bilateral and multi-lateral funding exist for the same purpose. In addition, a market system for REDD+ and other carbon projects is developed. The voluntary carbon market is an example.

In this context, the FTNS designed the project K in 2016. This project started the same year and planned to put in place a carbon fund which will contribute to the sustainable management of community forests through the PES mechanism. This fund will be supplied by the carbon credits sold in voluntary carbon market. Until this project started, there was not any operational mechanism to ensure sustainable forest management in community forests in the TNS. Unsustainable artisanal logging was practiced by timber merchants at the expense of local communities and indigenous population. This innovative fund mechanism is crucial in rural communities.

The establishment of the fund involves various organizations:

- FTNS is in charge of the overall coordination of the project. It will mobilize the support of national consultants to develop and link the project to the PES market.
- Plan Vivo Foundation as a voluntary market actor is in charge of the certification and registration of the mechanism in PES and carbon voluntary markets.
- The World Agroforestry Center (ICRAF) is in charge of agroforestry component, especially the training and technical support to community organizations towards the practice of agroforestry in the eight target villages. ICRAF will also reinforce the capacity of the network of local NGOs (ROSE) in order to build a local base expertise that will subsequently serve in the up scaling of agroforestry techniques and close monitoring of local communities.
- The World-Wide Fund for Nature (WWF) and local NGO as main technical partners of park managers of Lobeke in Cameroon and Dzanga Ndoki in the Central African Republic, are in charge of sensitization of communities and setting up natural resources monitoring committees.

Once implemented, the day to day running of the mechanism will be carried out according to the requirements of Plan vivo standard and will involve the following stakeholders:

- Plan Vivo, which will be responsible for promoting the performance of the project in the PES market, raised funds from buyers and making them available to FTNS as the project manager.
- FTNS will ensure the overall management of the mechanism by: collecting and forwarding data of project performance to Plan Vivo, making available part of the funds from the markets to the local communities with which management agreements have been signed, ensure the overall compliance with the requirements of Plan vivo standards.
- Community organizations from the eight target villages which are the final beneficiaries of the funds generated by the mechanism. They will prepare, with the support of local NGOs, micro projects to be financed by FTNS on the basis of income from PES market.

3. Pilot Goals

The Goals of our mechanism Is to raise additional funds to supports local community efforts toward conservation of biodiversity and improvement of their livelihood.

Two types of financial benefits are expected from this mechanism: income from the sale of agricultural products and income from PES markets.

4. The Process and Approach

The process of implementing the mechanism is being carried out through three main fields of intervention or components: (1) Agroforestry, (2) Community participation in sustainable natural resource management, and (3) Links with PES and carbon market.

With regard of Agroforestry component, project signed a memorandum of understanding with the World agroforestry centre (ICRAF) as technical partner responsible for the implementation of agroforestry component. Regarding the community participation in sustainable natural resource management, agreements were signed with local NGO and park managers to support local community in identification of the drivers of deforestation in their forests, sensitization in climate change, development of participatory maps and conduct biomass inventory. To establish the link with carbon market, the project contracted with consultants at national and international level to support in the process of project certification by Plan vivo standard

5. The Challenges

For the PES component, the methodology developed at the national level for this type of project is a little bit different to the one established by Plan Vivo Foundation. As the FTNS wants the project to be validated both at national level and by the Plan Vivo Foundation, it must follow these two methodologies. For instance, we have two different templates for the Project Idea Note. This situation gave us much work because the project must write the same document twice. So, the non-harmonization of different templates is a problem.

The approach adopted by the organization to implement the project is based on the building of the capacities of local NGOs which implement activities in collaboration with community members. This approach is good because local NGOs benefit from lots of trainings, could replicate the approach in other sites and help to sustain project impacts within the areas. But, sometime, some have technical difficulties to implement activities even after receiving training. This situation has negative impact on the quality of the data collected and remediation requires more times than previously planned.

In the TNS, there is a legal vacuum about this innovative fund mechanism for the forest managed by the rural communities. There are not clarifications about carbon ownership. However, the rural communities have the right to manage community forest and use 100% of outcome generated for their development. Furthermore, States encourage initiatives such as project K.

Regarding the agroforestry activities, they are some challenges which have been noted. The conservation of the good qualities of the seeds (planting material or germplasm) until the project sites during the trip is one of them. This is because the project sites are far from the place seeds are collected. Sometimes, most of the seeds are lost before reaching the project area. The effective techniques of conservation have been developed by ICRAF to solve the problem.

Besides, the insufficient participation of community in nursery activities have been noted. Additional sensitization has been done to solve this difficulty and active members have been targeted and encouraged.

The benefit sharing will be one of the crucial points. This has started with some difficulties concerning the way the seedlings produced in different nurseries will be shared. The participatory benefit sharing mechanism was elaborated in the framework of this project.

6. Remaining challenges

The non-harmonization of different templates will remain a serious problem for a long time. Each carbon standard has its templates for required documents. Some countries in the Congo basin, including TNS countries have developed their own templates and the documents to submit must respect those templates. In this case, if the project is not implemented under the same standard adopted at the national level, certain documents will be written twice.

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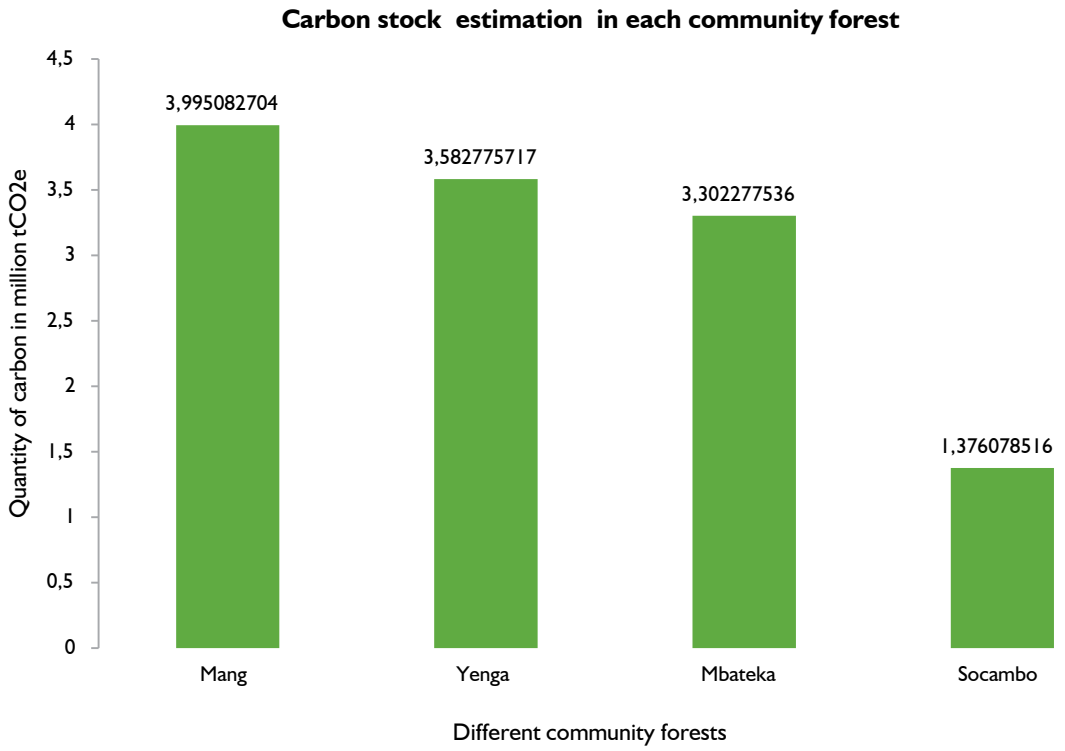
7. Results

Table 1: Results of different activities

Different components	Results	Observations
Agroforestry	- A memorandum of understanding has been signed with the World Agroforestry Center (ICRAF) as technical partner responsible for the implementation of agroforestry partner. - About 300 persons participated in sensitization meetings on agroforestry in Cameroon and CAR. - Trainers have been trained on nursery techniques and group dynamic. - 01 community (Mossapoula in RCA) under 7 has adopted the Integrated Soil Fertility Management (ISFM) technology and the six others faced many difficulties such as irregularity of rain, poor management by farmers, and incursion of animals in the plots. - A total of 82 community members have been trained in marcotting in Cameroon and CAR and 19 in building of humidity chamber, marcott harvesting and weaning. - 07 central nurseries have been established in the seven communities at the rate of one nursery in each community (05 in Cameroon and 02 in RCA) - 08 off-shoot nurseries have been established (05 in Cameroon and 03 in RCA). - A total of 26,826 plants have been produced and about 16,095 have been distributed between group members and the remaining is in the nurseries. - 02 seed/clonal orchards have been set up using grafted fruit trees (Irvingia gabonensis, Garcinia cola, Ricinodendron heudelotii and Cola nitida), one in Cameroon and one in RCA. - 27 persons have benefited from cocoa plants produced and have created about 13,5 ha of cocoa plantation associated with fruit trees in the fallow and secondary forest in both Cameroon and CAR.	All these activities were planned in the work plan.
The community participation in sustainable natural resource management	- 04 participatory maps have been produced in local village. - The drivers of deforestation have been identified as well as the project activities. - The FPIC (Free, Prior and informed Consent) has been obtained in different community forests. - 34 participants (stakeholders' representatives) have been trained in biomass inventory, climate change, PES concepts and threats mapping. - Micro-zoning has been carried out for each community forest and the boundaries between conservation and agroforestry zone have been marked using paint. - Community Forest monitoring plan has been elaborated and should be improved to include additional information related to the PES component such as monitoring indicators. - The revision of the Simple Management Plan of each community forest is in progress. - About 45 community members have been trained in bee farming and 10 hives about have been given to participants both in Cameroon and RCA. However, none hive is not yet colonized because the training was organized only a few weeks ago. The follow-up of this activity must be ensured by the project coordination.	Those activities were not planned under this component. They have been carried out in conformity with the plan vivo standard or the methodology elaborated at the national level for this type of project.
The link to PES and carbon market	- Feasibility study has been carried out. - Project idea note has been validated by the State - Project idea note has been validated by Plan Vivo Foundation as a potential carbon producer in international market. - Satellite images have been analyzed and the trends of deforestation and forest degradation have been documented for the community forests involved in the project. - Carbon assessment has been carried out in about 40 plots in each community forest. - Emissions factors have been calculated for every strata in each community forest. - Training on plan Vivo standard has been carried out during the project launching meeting. - The wellbeing indicators have been identified and analyzed in both Baka (pygmies populations) and bantu communities through a participatory survey. This survey allowed to obtain indicators which will be used to assess the impact of the project on beneficiaries - The writing of the PDD is in progress - The baseline and project scenario have been achieved for each community forest and should be improved after the exchanges with communities 'members - Carbon stocks have been estimated for each community forest	Most activities were planned in the workplan. However, those which were not planned have been carried out in conformity with the plan vivo standard or the methodology elaborated at the national level for this type of project. These include the elaboration and submission of the project idea note and the feasibility study of the project

Carbon stock assessment

Figure 1: Carbon stock assessment for each community forest



The carbon stocks range from one village to another. They depend on parameters such as land use type and size, and emission factors. It is a good indicator for the forest dynamic. In our case, Mang has the highest carbon stock followed by Yenga and Mbateka. This can be explained by the total area of the undisturbed forest which is higher in Mang than Yenga. However, the community forest of Mbateka remains the least disturbed community forest, but not the biggest.

Reference and project scenarios

Figure 2: Reference and project scenarios for the community forest of Mang

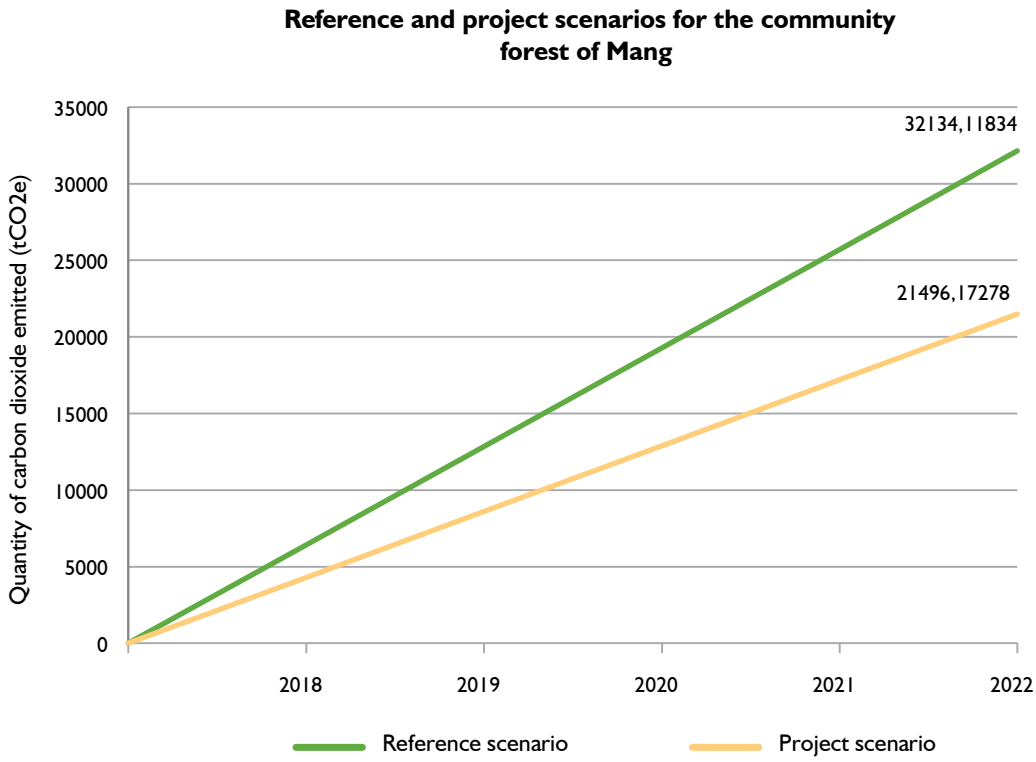


Figure 3: Reference and project scenarios for the community forest of Yenga

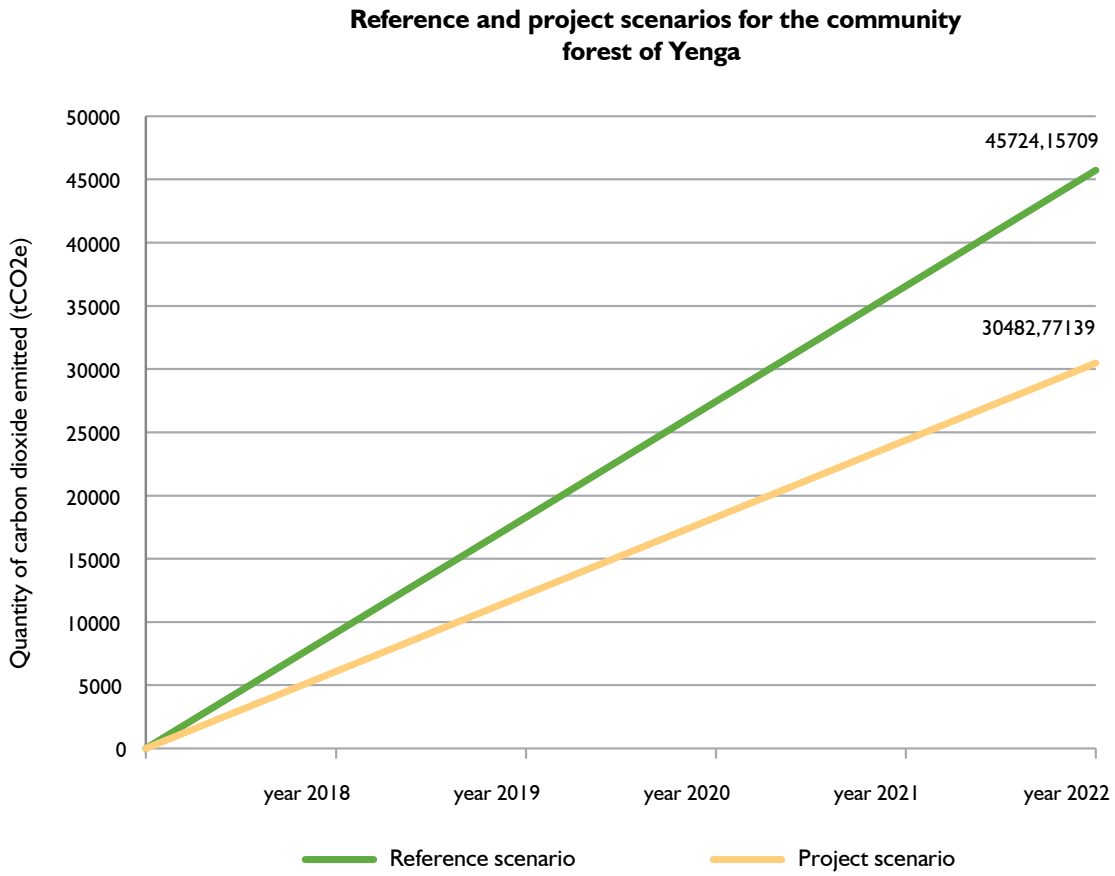


Figure 4: Reference and project scenario for the community forest of Mbateka

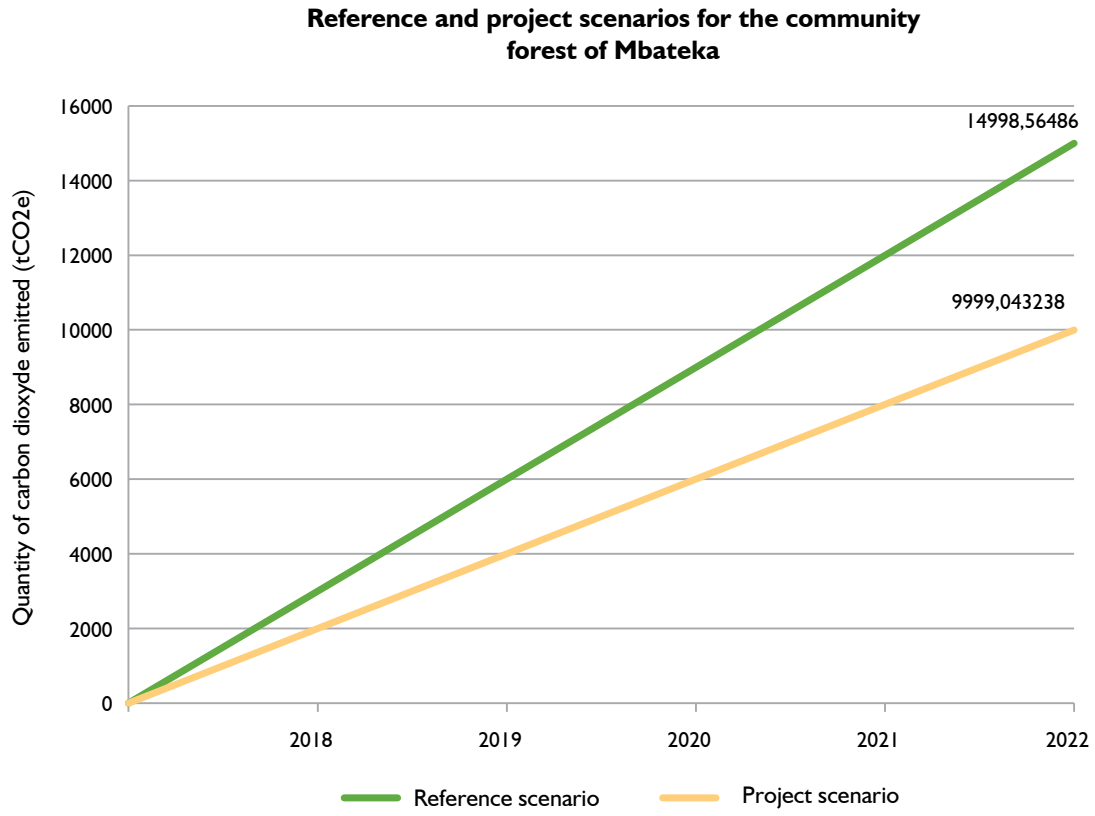
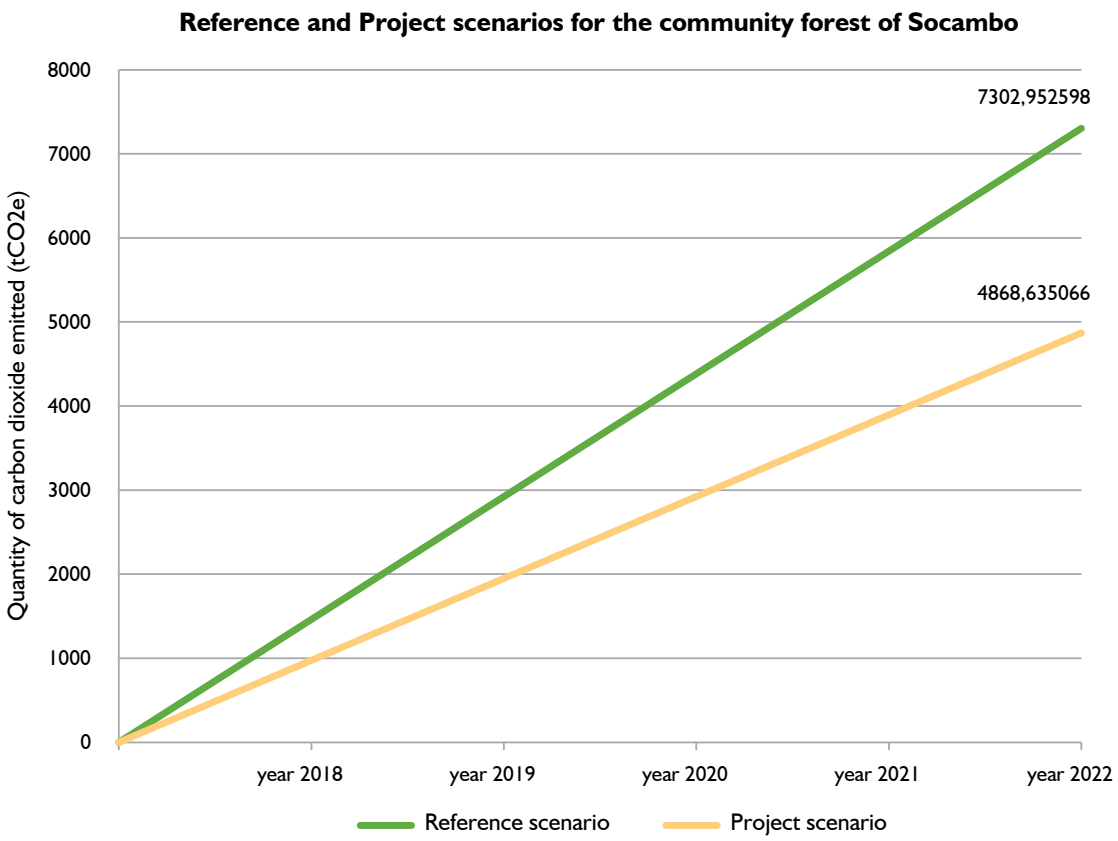


Figure 5: Reference and project scenarios for the community forest of Socambo



The analysis of satellite images enabled to calculate historical deforestation rate over the past 30 years for each community forest. The results obtained have been used to evaluate the carbon stocks which could be lost in the next five year both in the absence and during the project implementation. This corresponds to reference scenario and project scenario. From these values, the plan Vivo certificates which will be sold in the voluntary carbon market can be determined. However, some field verifications and data collection will be necessary to achieve so that these results can be refined. These charts give global trends of the quantity of plan Vivo certificates (carbon credits) which could be issued by each community forest over the next five years. We likely expect to have the highest quantity of plan Vivo certificates in the community forest of Yenga (15 241 tCO2e) and the second highest (10 638 tCO2e) in the community forest of Mang. In Mbateka and Socambo, we will have respectively 5000 tCO2e and 2 434 tCO2e.

The expected financial benefits have been estimated for each community forest from 2018 to 2022. Those values have been calculated thanks to the quantity of plan Vivo certificates belonging to each community forest and the average wholesale price of carbon for Plan Vivo projects in 2017. That wholesale price is $8.5/t CO2e (State of voluntary carbon market in 2017). The following table presents the expected amount of money each community could win. It could be lower if the leakage is meaningful. The evaluation of the level of leakage will enable to refine those figures.

Table 2: Expected financial benefits for each community forest for five years

Community forests	Expected Plan Vivo certificates (tCO2e)	Expected benefits ($)
Mang	10 638	90 423
Yenga	15 241	129 548,5
Mbateka	5000	42 500
Socambo	2 434	20 689
Total	33 313	283 160,5

> **“The practical link between conservation and financial benefits is quite attractive for local community and could really bridge the gaps between environmental funds (or organization) and local community”**

8. Benefits Observed

Although it is still early to talk in terms of benefits for conservation, we observed that many capacities building have been achieved in the three components of the project. Community members became more conscientious concerning the limitation of forest resources thanks to sensitizations organized. They also received lots of trainings in agroforestry which can enable them to reduce pressure on the forest and improve their livelihoods.

The project also succeeded to be registered as potential producer of carbon in the voluntary market. The practical link between conservation and financial benefits is quite attractive for local community and could really bridge the gaps between environmental funds (or organization) and local community.

9. Lessons Learned

9.1 The link to PSE and the carbon market

a) **The unclear benefi**t sharing mechanism can reduce the community participation in the project activities. This situation has been observed in some communities where nurseries have been created.
b) A regular monitoring is necessary in the project where most activities are implemented by consultants and NGOs which have contracts which project promoter. In the case of this project, the FTNS does regular monitoring. This enables it to have relevant discussion which technical partners about the beneficiaries' feedback.
c) Participatory project like the FTNS carbon project will require more time for the implementation because community members and local NGOs are trained and involved in each activity carried out in the field.
d) The field verification is essential for any project which uses satellite images for mapping. The project used satellite images to identify forest strata in community forests. The information obtained was not sufficient and was completed by the field verification.

9.2 Agroforestry

a) Farmers can become more receptive when there are convinced that the innovation brought by the project can be beneficial for them.
b) Indigenous people (Baka and Bayaka) are more comfortable to share their experiences or learn when trainings focus on the activities embedded in their culture.
c) It is indispensable that at the beginning, the organism in charge of training in innovation approaches supplies farmers with germoplasm for the short-term project.
d) Farmers can contribute to scale up the dissemination of innovation if they benefit from continuous technical support.

Image 1: A group photo of participants at the launching workshop of the project

Image 2: Interviews of officials by media during the launching workshop of the project

Image 3: Community leaders at the launching workshop of the project

Image 4: Training of community members in propagation techniques

Image 5: Practice of marcotting techniques by a community member

Image 6: A view of a community nursery with propagators supported by the project

Image 7: Planting of tree plants by a community member plot (1)

Image 8: Planting of tree plants by a community member plot (2)

Image 9: Workshop in climate change with community leaders

Image 10: Practice of carbon stock assessment in the forest with community leaders

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