

## Final Evaluation Report

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Your Details	
Full Name	Cristina Argudin Violante
Project Title	Evaluating honey production as a sustainable complement to livelihoods for forest communities in the Calakmul Biosphere Reserve
Application ID	28146-1
Grant Amount	£4,953
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1. Indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
Compute a cost-benefit analysis of ranching activities in one community of the Calakmul Biosphere Reserve (CBR)				<p>I performed interviews in a local community of the CBR to obtain data for a cost-benefit analysis of ranching activities. The aim was to increase the sample size of the survey performed in 2018 and to compare to those results. Although I performed interviews in all the households of the community (n=46 households), the interview conditions could not replicate those for the community surveyed in 2018 (Dos Naciones community). Only seven of the 46 households practiced small-scale livestock ranching (of goats), while in Dos Naciones farmers raise cows on a large-scale. Although I obtained results, sample sizes for ranching are too small to run a cost-benefit analysis that reflects the reality of the community. Instead, however, I was able to obtain valuable information about the socio-economic conditions of the community, its social structure and main livelihoods, focusing on those that represent an environmental threat. Whilst staying in this community I discovered that hunting activities were highly developed amongst the inhabitants. I therefore performed interviews in all the households to obtain information about hunting frequency, preferred prey species and motivations.</p>
Inform farmers about the impacts of their current livelihoods in two communities to promote informed choices about sustainable livelihoods				<p>Farmers were informed about the impact of their current activities during workshops. These ran successfully. People were motivated to reflect upon the economic and ecologic impacts of the activities they currently perform, by guided comparisons to the sustainable option of honey production.</p>

			<p>Participants were informed about the ecological and economic benefits of honey production in their local contexts and how, by diversifying their activities, they build resilience to face the climate change impacts that the region is currently facing. Monitoring showed that after the workshop, participants changed their perception about their current livelihoods and were more aware of the importance of preserving the forest.</p>
<p>Capacity building for honey production as a sustainable livelihood</p>			<p>A workshop for capacity building in organic honey production was developed and run successfully, facilitated by local honey producers and local NGO Pronatura. People got the chance to learn about technical and environmental aspects of this enterprise, both in theory and practice. They were informed about and experienced the importance of preserving the forest for the maintenance of ecosystem services. Participants were able to learn from and share experiences with local honey producers that live under the same conditions.</p> <p>Monitoring of the workshop and follow-up of the project showed that most participants are now interested in developing this activity and motivated to maintain the natural resources provided by their collectively owned forests.</p>

**2. Please explain any unforeseen difficulties that arose during the project and how these were tackled.**

During the first stage of the project - knowledge acquisition and exchange - I performed interviews with the aim of computing a cost-benefit analysis on ranching. It transpired that only seven households in the community raised goats as a livelihood, which provided too little information for the expected comparison with the 2018 pilot survey in a separate community (which had a high proportion of ranchers). With ranching in this community developed on a small scale, the information obtained is not robust enough to compute a cost-benefit analysis that informs on the condition of the whole community. Despite this setback, I did manage to obtain valuable information about the different livelihoods in the community, the organisation of the community and the social and economic

conditions of the households. I additionally ran other interviews to obtain information about the hunting activity in this community. All the information obtained is now undergoing analysis, after which results will be shared with the reserve authority and with local NGO Pronatura, guaranteeing the participants anonymity. This information is important for a better management of the Calakmul Biosphere Reserve.

During the same stage of the project, another difficulty arose, with motivating participation. I conducted a workshop in Dos Naciones to inform people about the impacts of their current livelihoods and to inform about sustainable livelihood options. Before doing the workshop, people did not seem willing to participate. Men said that they were busy doing their farming activities and did not have time to attend the workshop. In response to this issue, I held meetings with the community leaders and authorities, and additionally talked individually to the people by visiting their households. This made a difference: the workshop had a good turnout of people from the community, and the objective was achieved. This issue is important to anticipate while working with rural communities, because it shows the need for community engagement in a project. In addition, approaching participants directly helped in the further development of the project and in gaining their trust for future activities.

During the second phase of the project – experience acquisition and exchange - I became ill with a severe urinary infection that affected one of my kidneys. Because the Calakmul region is very isolated, I had to travel to Chetumal and Cancun for a few days to get medical attention. Fortunately, this issue arose only at the end of my last workshop.

### **3. Briefly describe the three most important outcomes of your project.**

#### **Data collection about main livelihoods in one community of the CBR.**

Valuable information for conservation was obtained on the social-economic conditions of one community of the CBR. After interviewing at least one person in 46 households, I was able to identify the main livelihoods in this community, the community structure and land tenure issues. Large amounts of data were obtained on hunting patterns, frequencies and motivations.

These data are relevant for decision making regarding sustainability and protected area management in the Calakmul region. Once the data are analysed, they will be shared with the reserve authorities and with the local NGO Pronatura, informing them on appropriate interventions to facilitate the sustainability process for this community. Anonymity of the participants will be guaranteed in all my reports.

#### **Capacity building in honey production as a sustainable livelihood that builds resilience to climate change impacts for vulnerable groups.**

For the organic honey workshop, I did not initially intend to include female participants, because it is only the men who are dedicated to ranching. The men are therefore the target group for a change in perception and capacity building in the sustainable activity of organic honey production. While spending time in the two communities of the CBR and after earning the trust of local people, women expressed their desire to participate in the workshop. Women in the CBR represent a

vulnerable group, since gender equality is still a distant prospect in rural Mexico. In the Calakmul communities, women do not obtain an income for their households and only perform household duties.

I therefore invited women to the honey workshop, which resulted in a comparable participation of men and women. During the feedback stage after completion of the honey workshop, a group of female participants expressed their desire to start working in organic honey production by forming a women's group. The group will include men, but women will be in charge of leading the process. The workshop thereby helped to empower a group of women in the CBR (Figure 1). Rufford's financing made it possible to initiate a process of change not only towards sustainability but also to transform the women's role within the community structure, in terms of reducing the inequality gap between men and women.

Since 2014, the CBR has experienced extreme drought resulting in severe losses of crops and livestock, affecting the local farmers' economies. This year has been critical for crops. Participants expressed their concerns about this issue during the workshops developed in the first phased of the project, and they identified a need to diversify their livelihoods to increase their resilience to climate change impacts. In this context, honey production gives the farmers another livelihood option that helps them cope with the critical weather changes that the region is facing. As honey production depends on the conservation of the forest, it also helps in maintaining the ecosystem services the reserve provides. During the honey production workshop participants were encouraged to lean towards an ecosystem-based adaptation strategy to face climate change impacts, rather than unsustainable solutions. People's response to this was favourable because they are now experiencing the impacts of changes in the weather.

#### **Long-term maintenance of the project through community engagement and networking.**

The project was not only successful in the short-term by achieving the planned objectives. Several strategies were set in place to achieve continuity into the future, and to enhance participants' independence in the implementation of honey production enterprises.

At an individual level, participants built their capacities for honey production. The selected communities had received no previous training in this matter – or any other - due to their isolated location and marginalised conditions. Participants were also trained in the importance of the forest in terms of the provision of ecosystem services. They were provided with the skills and knowledge needed to develop this activity and to ensure the continuity of the project. Local honey producers had the opportunity to share their knowledge and experiences with other communities. They were empowered to act as instructors from which they obtained recognition for their expertise and gained self-confidence as instructors.

Rufford's budget helped in enhancing independence and networking of future honey producers. Individuals of the two selected communities were taken to municipal meetings where governmental organisations select funding for rural activities.

Bringing communities together allowed a process of knowledge exchange and building networks between honey producers. Instructors offered to help and take part in the implementation of honey production enterprises in case of need by the future honey producers. This also allowed future honey producers to develop distribution and sales networks.

The project developed relations with the Calakmul Municipality that provides subsidies for organic honey production in the area. This link will support the further implementation of this activity in the target communities. In addition, we achieved a link to local honey buyers who will help newly established honey producers distribute their product at a fair price and suitable market. Relationships were built with a local honey organisation – Productores Orgánicos de Calakmul – that provides guidance and training to apiculturists in the region and can act as a potential honey buyer.



Figure 1. Activities during the capacity building for honey production workshop.

**4. Briefly describe the involvement of local communities and how they have benefitted from the project.**

The aim of this project was to inform, train, and empower local communities towards working in sustainable activities such as honey production. During the first phase of the project - knowledge acquisition and exchange – four community authorities and 115 individuals from two communities were directly involved in the interview process and in the initial workshops to inform farmers about the impacts of their current activities. During the second phase of the project - experience acquisition and

exchange - six local community authorities, two local organisations and 25 individuals were involved and benefited from the honey production workshop. The Calakmul Municipality's authorities and the CBR's managers followed up the project during all stages.

**5. Are there any plans to continue this work?**

Yes, I plan to ensure the continuity of the project during the summer of 2020. Next year I will visit the communities to find out what help the people need in the implantation of the apiaries and enterprises. I aim to start a pilot enterprise with women in one community (budget dependent). Additionally, Operation Wallacea along with the local NGO Pronatura Peninsula de Yucatan, are seeking funding to set up the apiaries in the target communities and to provide further training.

**6. How do you plan to share the results of your work with others?**

I will present my work at the Environmental Biosciences Seminar Series at the University of Southampton in November 2019. I will then go on to show my work to a bigger audience during the 'STEM for Britain' poster competition (<http://www.setforbritain.org.uk>) in 2020. This annual event is hosted by Stephen Metcalfe MP, Chair of the Parliamentary and Scientific Committee, and attended by a significant number of MPs and peers. I will publish my results in peer-reviewed international research journals, to share them with a wide scientific audience.

**7. Timescale: Over what period was the grant used? How does this compare to the anticipated or actual length of the project?**

The grant's budget was used between June and early September 2019. The anticipated timescale of the project was from June to late August.

**8. Budget: Provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used. It is important that you retain the management accounts and all paid invoices relating to the project for at least 2 years as these may be required for inspection at our discretion.**

Item	Budgeted Amount	Actual Amount	Difference	Comments
Flight ticket London-Cancun (round trip)	£690	£1047	+£357	In the grant application, I asked for a flight ticket from London to Cancun. I had to change my original arrival port (Cancun) to Mexico City, which was somewhat more expensive than expected (£758.37). This was due to meetings that I had to attend in order

				to ensure the success of the project and my PhD field season. The tickets from Mexico City to Cancun were covered by my University studentship. Additionally, I had a confusion with my return flight, so I had to change my ticket to a later date (£288.25).
Catering for 30 people	£607	£662	+£55	Catering during the workshop was provided to 30 people – instead of 40 as considered in the original budget - : 23 participants, 2 instructors, 4 community authorities and me. The budget exceeds the original budget because subsistence for 23 participants was included in the catering.
Subsistence per day for 23 participants	£960		-£960	Subsistence expenses for 23 participants are included in the catering budget. Less amount of money was required since only 23 participants attended the workshop; the original budget considered 40 participants. Instructors and community authorities did not require subsistence or accommodation expenses.
Accommodation for 23 participants	£1092	£444	-£648	The final amount for accommodation was less than contemplated in the original budget because the later estimated accommodation for 40 people.
Transportation for participants	£786	£869	+£83	A 4x4 truck was needed to move participants to the apiaries for the practical sessions of the workshop. This was not included in the initial budget because I was not aware at the time of this need.
Catering	£40	£40		
Internal transport	£121	£540	+£419	The Calakmul municipality lacks a public transport system due to the poor infrastructure in the area. Getting to rural communities and having mobility in the area is difficult without a car. Due to my need to move around the area, I rented a private car with my studentship budget from the University of Southampton. I used the Rufford

				budget to pay for petrol to travel between the targeted communities, to attend meetings with different stakeholders, to transport people from the communities to meetings with different stakeholders (as mentioned in the section above), and to move to urban areas when I needed medical attention.
Accommodation	£322	£137	-£185	I required less money for accommodation than estimated in the original budget. Having a car made possible to travel some days to the campsite after working in the communities.
Subsistence	£283	£380	+£97	I required more money than estimated in the original budget because I was constantly working in the communities where I needed to pay for subsistence. When I got ill, I also required to pay for food during the days that I got medical attention.
Transport Cancun - Calakmul	£52	£85	+£33	Beside the coach transportation between states - Quintana Roo to Campeche - I had to use local taxis to get from the airport to the coach station and vice versa. In Mexico, taxis raise their tariffs during peak seasons, due to the high tourism in some areas.
Payment for local instructors		£243	+£243	I had to pay two local instructors for their work during the workshop. I had not initially considered this, but while in Calakmul I realized that people had to put aside their daily activities to get involved in the workshop. This means that they lose their daily income.
Equipment		£522	+£522	Local instructors and experts in honey production made me aware of the safety issues in an apiary. I had to buy veils and gloves to protect participants during the practical sessions of the workshop. I sought support from the Department of Apiculture of the Calakmul Municipality in lending the material needed, but they had nonavailable. I had not initially considered this

				essential expenditure on safety. After the workshop, the items were donated to the participants.
<b>Totals</b>	<b>£4953</b>	<b>£4970</b>	<b>+£17</b>	

**9. Looking ahead, what do you feel are the important next steps?**

The important next steps fall into two categories.

(a) *Data analysis.* The next step is to analyse the information collected during the project, and then to share it with conservation organisations in the region during summer 2020. Although the Calakmul Biosphere Reserve is an area of conservation importance, there is still a scarcity of information about how social and ecological issues interact in the region. This kind of information is needed to achieve the transformative changes in the area that will help to reduce poverty and inequality even as the region shifts into an era of uncertain climate exacerbated by global heating.

(b) *Implementation of honey production enterprises in the focus communities.* The next steps include:

- Providing support to future honey producers in the implementation of this activity during summer 2020. I aim to set an apiary with a group of women in one community, budget dependant. Women will need help in preparing the paperwork needed to set the enterprise, install the apiary and distribute their production. This project will work as a pilot so other farmers/ranchers can then begin to set more apiaries.
- Further training and guidance for future honey producers, especially focusing on technical issues, such as plagues, management of the apiaries during droughts and marketing.
- Sustaining the networks built during the project.

**10. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the Foundation receive any publicity during the course of your work?**

I used the Rufford logo in the presentations at the workshops, to acknowledge the foundation’s contribution in the development of the project. I will use the Rufford logo during presentations of the project in the University of Southampton, and at the STEM for Britain poster presentation. I will acknowledge the support of The Rufford Foundation in all research papers that issue from the study.

**11. Please provide a full list of all the members of your team and briefly what was their role in the project.**

**Cristina Argudin Violante**

I was working in Calakmul during the duration of the project. I organized, developed and monitored the success of all the activities of the project.

**Patrick Doncaster**

Professor Doncaster followed up on all the activities prior to, during and after the project. He provided scientific and technical advice on the design and development of the surveys and workshops. He will provide scientific guidance in the analysis of the results.

**Kathy Slater**

Dr Kathy Slater followed up the activities of the project while in the field. She provided support for the logistics of the project.

**12. Any other comments?**

I am extremely grateful with the Rufford Foundation for making it possible to achieve positive changes in rural people's economies and in the maintenance of the ecosystems in a highly biodiverse area of my home country.