

GUATEMALA'S NTFP HARVESTING INDUSTRY: IDENTIFYING STRUCTURAL
COMPONENTS AND ECONOMIC AND SOCIAL SUSTAINABILITY IN THE MAYA
BIOSPHERE RESERVE

School of Environment and Natural Resources

Honors Undergraduate Thesis

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ABSTRACT

Non-timber forest products (NTFPs) have long been harvested in forested tropical regions for individual consumption as well as for commercial purposes. They contribute both to local livelihoods and sustainable forest management. The NTFP industry in northern Guatemala operates across the Maya Biosphere Reserve, within the concessions that constitute a large share of the land. Each concession has their own sustainable forest management plan, participating in the harvest of different products seasonally. In this study, the harvest of the ramon nut (*Brosimum alicastrum*) and the xate palm (*Chameadorea oblongataare*) will be examined in five different NTFP harvesting cooperatives. The objectives of this study are to provide a deeper understanding of the structure of NTFP harvesting regimes by examining the types of roles, i.e. activities or positions, that exist in NTFP harvesting, who holds which roles, and how the roles may vary for different products and between different communities that participate in NTFP collection. The quantity and types of various roles associated with the NTFP harvesting process in participating communities and whether or not these roles change in accordance to demographic information (gender, age, income) were examined. Further comparative analyses allowed for the assessment of differences in operations across different NTFPs and/or harvesting locations. It was determined that there are two essential roles: Collector (i.e. harvester) and processor. These roles do not vary across the concessions, revealing a cohesive NTFP industry structure. Further analysis of these roles reveals that gender does impact the role that a participant will have, but age and income do not. Data on age and income present implications for long-term sustainability of the NTFP industry in the future. The concerns for long-term sustainability arise from the age demographic that participates in harvesting, the wages participants earn and how wages contribute to their income portfolios.

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for all your work to uplift your communities and to continue protecting one of the most valuable resources and forests stands that still exists on this planet”).

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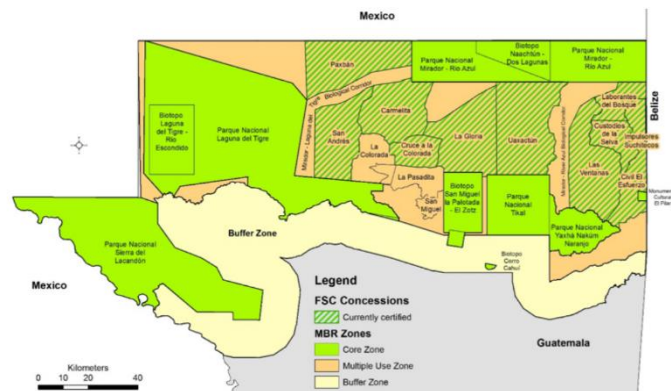
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INTRODUCTION

The objectives of this study are to provide a deeper understanding of the structure of non-timber forest product (NTFP) harvesting regimes, and to assess how the structure of the NTFP industry affects the livelihoods of individuals and the sustainability of the concessions. To accomplish this goal, the research examines the types of roles, i.e. activities or positions, that exist in NTFP harvesting, who holds which roles, and how the roles may vary for different products and between different communities that participate in NTFP collection. The quantity and types of various roles associated with the NTFP harvesting process in participating communities and whether or not these roles change according to demographic information (gender, age, income) will be examined. Comparative analyses were conducted to identify differences in operations across different NTFPs and/or harvesting locations. While the harvest of NTFPs has been established as means of supporting local livelihoods with the ability to contribute to sustainable forest management, very little is known about the specifics of the industry in Guatemala and how individuals participate and interact within the industry. This study will explore these questions and fill in gaps in current NTFP literature by identifying key roles that community members fill in the NTFP industry, and future prospects for the industry to be successful.

NTFP collection has been promoted as a means of responsible forest management and conservation in addition to being a means through which collectors can improve their economic and/or livelihood states (Gubbi & MacMillan 2008). NTFP harvesting has long existed in many regions, but the establishment of the Maya Biosphere Reserve (MBR) in 1990 encouraged continued development of the NTFP industry in northern Guatemala. When the MBR was created under the direction of the National Council of Protected Areas (CONAP) (Consejo

Nacional de Areas Protegidas), three different use zones were established within the MBR: a core protected area, a multi-use zone, and a buffer zone (Fortmann 2014). The community forest concessions exist within the multi-use zone, which covers approximately 40% of the MBR, and is where a large portion of the harvesting of NTFPs takes place (Rainforest Alliance 2016). The Guatemalan government granted land concessions with usufruct rights to twelve community-managed groups and two private, industrial firms within the multiple-use zone to manage both timber and non-timber forest products. The community concessions have land rights to their granted parcel of land and are able to use the land for subsistence and commercial needs, so long as their use of the forested areas remains sustainable. The community concession structure of the MBR has come to serve as an internationally recognized example of the ability to achieve conservation and social development in multi-use land zones (Hodgdon et al. 2016).



Figures 1: Map of Guatemala. Figure 2: Map of Concessions. Maps courtesy of Hodgdon et al. 2016.

The purpose of establishing the MBR was to halt the agricultural expansion and associated deforestation from further encroachment onto forested lands, partly in response to pressure from international conservation groups and growing dissatisfaction of local populations with the management of the forests (Fortmann 2014). The creation of the concessions allowed

for households that depended on forest resources for their livelihoods to continue sustainable use of the land and resources (Bocci 2019). The extraction of timber products and NTFPs from the multi-use zone was permitted once community members founded a legal association and created a sustainable forest management (SFM) plan, where extraction could continue so long as the management plan was followed (Fortmann 2014). The SFM plans were developed to comply with the standards of the Forest Stewardship Council (Rainforest Alliance 2016). The concessions formed the Association of Forest Communities of the Peten (ACOFOP) (Asociacion de Comunidades Forestales de Peten) in 1997 to represent their communities' voices and common interests and increase their ability to participate in industry and state level negotiations (ACOFOP 2016). ACOFOP currently supports the individual concessions communities, helps the community NTFP collectors receive wages, and helps the concessions obtain resources and certifications.

An examination of other regions with similar land-management regimes and harvesting agreements follows and serves as the background research that guided the development of this study. A system very similar to that of the MBR exists in India in the Periyar Tiger Reserve (PTR), in which communities that reside within protected areas are permitted to collect NTFPs (Gubbi & MacMillan 2008). Gubbi and MacMillan (2008) revealed that the literature is lacking data on how financial rewards that individuals can receive from NTFP collection can contribute to sustainable development initiatives. A study in the PTR was conducted to analyze the revenues obtained from different NTFPs in the reserve, estimate the returns to collectors from different social backgrounds, and explore collectors' attitudes towards their profession (Gubbi & MacMillan 2008). Previous studies in India have focused on the contribution NTFP collection makes to household income, but there is a gap in the literature in dealing with how socio-

economic and socio-cultural status can influence and determine income from NTFPs (Gubbi & MacMillan 2008). The study revealed that the most commonly collected NTFPs were not the most valuable NTFPs, and that the mean daily revenue for individuals' collection was \$3.15 USD (Gubbi & MacMillan 2008). Gubbi & MacMillan (2008) also found that collectors with low socio-economic statuses, including migrants, forest-dwellers, and those without access to agricultural land, continued to be the lowest earners. Of the collectors surveyed in the PTR, 82% did not want to continue harvesting NTFPs if other agricultural opportunities became available and 0% of collectors wanted their children to become NTFP collectors (Gubbi & MacMillan 2008). A level of dissatisfaction with the collection of NTFPs was implied, and the authors conclude that there are concerns surrounding the ability of NTFP collection to satisfy social justice, poverty alleviation, and sustainable development initiatives because of the low reported wages and economic returns, implying that NTFP harvesting supplies subsistence livelihoods, but does not help NTFP collectors raise their livelihood status.(Gubbi & MacMillan 2008). These findings present concerns for the ability of NTFP harvesting to contribute to sustainable livelihoods and long-term sustainability in Guatemala as well due to similarities in the harvesting industries.

Additional contributions to the literature were made by Ndanyalasi et. al (2007), who studied the ecological and socio-economic aspects of NTFP harvesting and compared across two forest ecosystems in Sub-Saharan Africa: Uzungwa Scarp Forest Reserve (USFR) and Bwindi Impenetrable National Park (BINP). Interviews were conducted with 91 women and 54 men and revealed that most NTFPs were harvested for medicinal use or construction and were often harvested or collected in both unprotected and protected areas (Ndanyalasi et. al 2007). In an

unprotected area, the NTFP species was more likely to be ecologically harmed and the authors advocated for better management practices (Ndanyalasi et. al 2007).

While there is extensive literature on NTFP collection and harvesting across the globe, what is lacking is the identification of the varying roles (i.e. activities, positions) that take place across different regimes and who holds them. Current research tends to focus on the ability of NTFPs to contribute to SFM practices, rather than on who is taking part in what capacities and how those roles facilitate SFM. This study explicitly identifies roles in the concessions in the MB and identifies demographic information about the participants. Very little is known or has been contributed to the literature on the physical structure of the industry, whether or not a hierarchy of participant roles exists, and what that means for individuals from different demographic groups. This study seeks to expand upon the gap in the literature as highlighted by Gubbi & MacMillan, in which socio-economic and socio-cultural factors may influence the income that different demographic groups can earn from participation in the NTFP industry. Gubbi and MacMillan (2008) state that low income groups, such as migrants, forest-dwellers, and those that do not own their own land continue to earn lower wages, while forest use is often determined by cultural, political, and economic background factors due to government control over land. Further, the income that can be accumulated through the collection of NTFPs, referred to generally as “environmental income,” is very important to understanding rural livelihoods (Angelsen et al. 2014). Especially important is the portion of total income portfolios that environmental incomes make up, and the ability of products such as NTFPs to contribute to income portfolios presents implications for the welfare for both people and natural resources, if development and conservation strategies are to be effectively designed (Angelsen et al. 2014). This study has been developed to examine if the findings of Gubbi and MacMillan also apply to

NTFP harvesting Guatemala in regards to socio-economic and socio-cultural factors influencing income, and if the subsequent income portfolios of NTFP harvesters in Guatemala can influence the longevity and success of development and conservation projects in the MBR (Gubbi and MacMillan 2008; Angelsen et al. 2014).

METHODS

The objectives of this study are to provide a deeper understanding of the structure of NTFP harvesting regimes by examining the types of roles, i.e. activities or positions (e.g. processing, harvesting, and marketing), that exist in NTFP harvesting, who holds which roles, and how the roles may vary for different products and between different communities that participate in NTFP collection. The quantity and types of various roles associated with the NTFP harvesting process in participating communities and whether or not these roles are correlated to demographic information (gender, age, income) will be identified. Further comparative analyses will determine whether or not differences in structure exist when examined across different NTFPs and/or harvesting locations. The specific questions this study seeks to answer are:

1. What are the various roles associated with NTFP collection?
2. How do the roles associated with NTFP harvesting change according to demographic and socio-economic information?
3. How does NTFP harvesting contribute to income portfolios, i.e. what is their income from NTFPs and are participants required to hold multiple jobs?
4. Are the roles, demographics, and/or earnings different across different communities and NTFPs?

5. Is the NTFP harvesting industry socially and environmentally sustainable in the long term?

In order to answer these research questions, a qualitative survey of NTFP participants was designed and administered in the form of individual interviews. Local participants in the NTFP industry were sampled and asked about their experiences in the collecting and processing of two NTFPs that are harvested in northern Guatemala, specifically within the Petén Department of the MBR: the ramon nut (*Brosimum alicastrum*) and xate palm (*Chameadorea oblongata*). The ramon nut and xate palm will be referred to simply as ramon and xate respectively throughout the remainder of this study. Xate is a large part of the NTFP industry and is harvested year-round, while ramon is currently being harvested on a much smaller scale (Fortmann 2014; Bocci 2019). Participants in the interviews were asked questions regarding a typical workday, their tasks in NTFP harvesting, demographic information, their income from harvesting, and their interactions (and frequency of interactions) with other NTFP workers who hold different positions.

The interview populations and locations were determined through initial conversations with the Association of Forest Communities of the Petén (ACOFOP; “Asociacion de Comunidades Forestales del Petén”). Individuals from two other groups also needed to be involved to approve the research approach: National Council for Protected Areas (CONAP, “Consejo Nacional de Areas Protegidas”) and Forest Enterprises of Community Concessions of the Maya Biosphere Reserve (FORESCOM, “Empresa Comunitario del Servicios del Bosque- concesiones forestales comunitarias del MBR”). The research proposal, objectives, and timeline were presented to ACOFOP and the representatives of CONAP and FORESCOM, who approved the research project and interview questions and permitted travel into the concessions communities to

interview harvesters of both ramon and xate. The study was also approved by the Ohio State University's Institutional Review Board before traveling to Guatemala to propose the study to ACOFOP. ACOFOP was in the midst of a socio-political study of the concession communities, and the socio-economic nature of this study was in line with their own research goals. This project was granted access to the concessions and ACOFOP provided immense resources, given that the findings of this study would be reproduced in Spanish and provided to ACOFOP so they could continue to aid and study their own communities.

Upon receiving ACOFOP's approval to carry out the interviews, and optimal set of concessions to visit and conduct interviews in were identified. These are: Asocicacion Muralla de Leon (AMUL), Alimentos Nutri-Naturales Sociedad Anonima (ANSA), Carmelita, Custodios de la Selva (CUSTOSEL), and Uaxactun. ACOFOP helped identify the sample by establishing the communities we would be able to visit. ACOFOP identified locations in which NTFP participants could be asked to participate in the study. Participants were found in collection camps, processing bodegas, and central town areas. The participants did not receive compensation for their time but were still willing to provide responses.

Interviews with participants were confidential, individual, completed one-on-one except when a native Spanish speaker from ACOFOP was present and assisting in the interview process due to some language barriers. All interviews were conducted in Spanish by the principal investigator. The interviews were accompanied with an audio recording when given permission from the participant to record. All participants were assigned a participation number that corresponds to the written set of notes taken during their interview, their concession, and to the voice recording when granted permission to record. No personally identifiable information was

recorded or will be reported (The interview questions and script can be found on pages 44-63 of the Appendix, in both English and Spanish).

The recorded interviews offer the ability to listen to the interviews again to collect and determine the most pertinent information needed to respond to the set of questions posed in the research objectives. In order to best synthesize and analyze this information, the recorded interviews were transcribed using a software called HappyScribe. HappyScribe is an audio-to-text transcription software that was designed to be able to distinguish between many dialects within a given language. HappyScribe was programmed with a Guatemala-specific Spanish language detector. The recorded interviews were uploaded to HappyScribe and transcribed in Spanish. Post transcription, the interviews were translated into English, using Google Translate.

Once all interviews had been transcribed, they were analyzed using NVivo, a language coding software that helps researchers quantify qualitative data. All of the interview transcriptions were uploaded to NVivo, where themes, topics, and relationships were identified and sorted using “nodes.” Nodes were created for every interview question, each concession that participated in the study, and for other recurring themes explored in this study, such as the influence of the ecotourism industry, future development, and sustainability .Once the appropriate information from each interview had been coded to a node, the node could be examined to view all of the information from each interview that had been coded to that node. For example, once all interviews that contained participants ages had been coded to correspond to the “age node,” the ages of all of the participants could be viewed at once, making calculations and observations about the age demographic of the industry cohesive and all inclusive. NVivo helps eliminate the potential for error in the demographic observations, as each interview does not have to be examined individually to determine age make-up.

RESULTS AND DISCUSSION

A total of 55 participants were interviewed over a one-week period from five different concessions communities. Of the total participants, 13 were involved in the harvest of ramon, 40 were involved in the harvest of xate, and two worked for ACOFOP in administrative positions. Out of the total ramon harvesters interviewed, 11 out of 13 consented to be recorded. Out of the total xate harvesters interviewed, 31 out of 40 consented to be recorded. Both of the ACOFOP employees consented to be recorded. Recordings and interview transcriptions are not available for the 11 participants who did not wish to be recorded. The responses of these participants were documented to the best of the interviewer's ability in the form of hand-written notes. Of the 40 total xate harvesters interviewed, 15 were harvesters in Carmelita, eight were harvesters at CUSTOSEL, and 17 were harvesters in Uaxactun. Of the 13 total ramon harvesters interviewed, four were harvesters at AMUL, four were harvesters at ANSA, and five were harvesters in Uaxactun.

An important factor to note at the outset is that each interview was unique in a variety of ways. The shortest interview lasted six minutes, while the longest interview lasted two hours and four minutes. Some participants were extremely willing to divulge information and wanted to speak in depth about their experiences, while other participants only wanted to answer some of the questions or only questions that didn't require lengthy responses. For this reason, much of the information that was collected in regard to supply chains, industry operations, interactions between concessions, interactions with administrative organizations, and sustainable management practices came from the same few participants who shared lots of information and spoke for an extended amount of time. Further, the nature of interview setting varied based on the time of day and the concession in which the interview was conducted. Some participants

were able to sit down, take a break, and chat, while others preferred to continue working while they were interviewed, or were only willing to stop working for a few minutes to participate. Specific participants will be referenced by the interview number they were assigned only if the participant is being directly quoted. No interview transcriptions will be made publicly available in order to protect the participants' confidentiality and safety rights. The audio recordings and corresponding transcriptions remain property of the investigator.

The five concessions and/or cooperatives in which the interviews were conducted in also have differences worth noting. The concessions and/or cooperatives visited were AMUL, ANSA, Carmelita, CUSTOSEL, and Uaxactun. Four out of the five concessions visited were responsible for both the harvest and processing of the NTFPs, while one of the concessions, CUSTOSEL, did not have a processing facility. Only one concession, Uaxactun, currently harvests both ramon and xate, although three out of the five concessions harvest other NTFPs that were not examined in this study in addition to xate. Two out of the five concessions, AMUL and ANSA, harvest only ramon. The descriptions of the concessions provide insight to their operations and are observed data on the functioning of each concession, the roles and positions each concession can provide, and the collectors and processors that make up each concession.

The first concession visited was Carmelita. Carmelita is both a forest concession and a residential community. It is a cultural tourism and ecotourism stop and is a concession that harvests both timber and non-timber forest products. The majority of NTFP participants interviewed in Carmelita were born there or were long-term residents of the community. Carmelita is responsible for both the collection and processing of xate. The processing takes place in a building referred to as the "bodega," which is located in the central residential area of the concession community. The harvesting sites within Carmelita, referred to as "campamentos"

(“camps”), were set into the forest area managed by the concession and were far from the concession’s central residential area. To interview xate harvesters working in the camps, the interview team was driven an hour into the forested area. One camp of 12 harvesters was interviewed at their campsite while they worked. While ramon was not actively being collected at a large scale in Carmelita, the concession expressed a desire to begin implementing ramon into their TFP collection industry.

The second concession visited was CUSTOSEL (“Custodios de la selva,” “Custodians of the Forest”). CUSTOSEL is the singular concession visited that did not have its own processing bodega. CUSTOSEL is not a residential concession. The only people living there are the people actively harvesting xate. There were three buildings: a communal kitchen, a communal bunking dormitory that had 20 beds, and a bathroom. In this concession, the harvesters were from other cities and were temporarily living in communal facilities while they harvested xate in the CUSTOSEL concession. There were also camps of harvesters further out into the forested area, similarly to Carmelita, but the majority of harvesters in this concession lived in the communal building and walked out to their harvesting sites on a daily basis. The interview team stayed in the communal living area for one night and was driven further into the forested area to a camp of harvesters the following day. Harvesters from both the communal living area and one camp participated in interviews.



The third and fourth concessions visited are both cooperatives of all women that harvest the ramon nut. Neither concession is residential. The third concession was the cooperative AMUL (“Asociacion Muralla de Leon”). AMUL harvests ramon from a forested area and public park that borders part of the Peten Lake. AMUL collects and processes ramon on-site. Ramon is not typically processed as a whole nut but is more commonly milled into a flour. AMUL has their own mill and kitchen for processing. The women of AMUL expressed great interest in future development and in community and cultural preservation. They were interested in the development of a community ecotourism site at their cooperative and highlighted a need for educating young people about the Maya cultural heritage connected to the ramon nut. They are currently working to get the nut products into local elementary schools to foster education about cultural heritage and improve child nutrition in the region.

The fourth concession visited was the cooperative ANSA (“Alimentos Nutri-Naturales Sociedad Anonima,” “The Anonymous Society for Natural, Nutritive Nourishment”). The interview team visited ANSA’s processing hub. ANSA had the capability of producing a wider variety of ramon products due to greater mechanical capital. In addition to a mill, ANSA had a roaster and a more sophisticated drying set-up than did AMUL. Women involved in the ANSA cooperative could bring the ramon nuts they collected to the processing facilities there. It was not clear if ANSA had a specific site or forest stand from which they collected ramon. If ANSA collected from a particular site, it was not connected to their processing facility. ANSA currently has partnerships with several local restaurants to whom they sell their ramon products.

The fifth concession visited was Uaxactun. Uaxactun is a major community ecotourism site and residential concession. This was the only concession visited that actively harvested both ramon and xate, although xate harvesting was much more prevalent and developed than ramon collection. The research team stayed in Uaxactun for two days, interviewing people that came back from harvesting and people working in the processing bodega. The majority of the interview participants in Uaxactun were born in Uaxactun or had lived there long-term. The bodega and residential area are centrally located within the forest concession. Harvesters set out for the day, walking into the forested areas to harvest xate. Upon returning to town in the evening, harvesters would drop their collected xate at the bodega for processing and could return to their homes.

This is unlike the xate harvesting process at Carmelita or CUSTOSEL, where harvesters had to live further out in camps for more extended periods of time to work and harvest, without as much as ability to return home every day. The xate processing bodega here was also much larger and had many more people working in it than the bodega in Carmelita. To interview

ramon collectors, the interview team went door to door to identify people who collected ramon. Those who collected and were willing to participate in the interviews invited us into their homes for the interviews, as most of the ramon collectors in Uaxactun harvest independently and bring the collected nuts back to their homes to sort. Ramon was not actually processed or milled in Uaxactun. Uaxactun presented the starkest example of the differing roles between women and men in NFTP harvesting, especially as contained within one concession.



Visiting and conducting interviews in five different concessions and communities has allowed for a comprehensive examination of the overall structure of the NFTP industry in the MBR. The structure of the NFTP industry is revealed through the identification of the roles and

responsibilities of individual participants. An examination of demographic characteristics (age, gender, income) of individual participants reveals that gender does impact which role a participant will have, while age and income do not. Age trends and income statistics, however, raise concerns about the sustainability of the NTFP industry in the long term. The data analysis that follows will present findings and insight from the interview responses of xate harvesters and ramon harvesters separately. Examining the data of individuals as it corresponds to xate and ramon separately reveals that the roles and responsibilities do not change across NTFPs, but they can be carried out differently and can vary slightly between different concessions.

Identifying NTFP Industry Structure and Roles

In order to determine the various roles associated with NTFP collection, participants in the study were asked to describe a typical workday (See pages 44-63 of the Appendix for complete set of interview questions). In their description of a typical workday, participants were asked to identify their duties and whether or not their duties change from day to day. In order to determine the structure of the industry as a whole and determine whether or not a hierarchical scheme existed between workers, they were asked about their relationships with their coworkers, the frequency with which they interacted with administrative higher-ups, and if they had to report to anyone on a daily basis. Through the interviews that were conducted, it was established that there are two essential roles in both ramon and xate harvesting, as these are the only two activities that any participant described partaking in. These roles are collector and processor. Interviews with ACOFOP employees also support this finding, who stated in their interviews that some people would harvest the NTFP (collectors) and others would clean, sort, and package (process) the harvested NTFPs in a bodega (processing facility) (Participants 1 and 2). The collector and processor roles pertain to both NTFPs and all concessions, but the way that roles

are carried out varies by concession and the specific NTFP, as identified by the observed operations differences between concessions communities. It was also determined through interview statements that collectors tended to work individually and did not have to report to anyone.

There were a few interviewees who had more administrative or managerial roles, such as communicating with other concessions and with the administrative forestry bodies (e.g. ACOFOP, CONAP, and FORESCOM) in addition to being collectors and/or processors (Participants 4, 11, 12, 16, and 32). Collectors and processors that held managerial roles typically also completed tasks such as managing a bodega, reporting on collection totals, transporting necessary supplies to the camps or to other concessions when necessary, and transporting the collected NTFPs back to ACOFOP headquarters. This established that the concessions managers are in conversation with and report to ACOFOP primarily, and in some instances CONAP and FORESCOM. All three of these forestry organizations work closely together, while ACOFOP works most closely with the concessions themselves. CONAP is the state authority that regulates the concessions, while FORESCOM is a marketing organization that works with both ACOFOP and CONAP to organize NTFP sales and exports. While the concessions manage their own resources and collection and do not work directly for ACOFOP, ACOFOP is the concession's industry group that reports their earnings, helps the concessions and individual collectors and processors get paid, and helps concessions set up rights for development, rights for obtaining certifications such as the certification for organic production and for international exportation, and continues to advocate for the rights of the individual concessions to continue living and harvesting from the forests in a sustainable way. Each concession had to establish their sustainable forest management plan through ACOFOP (Hodgdon et al, 2016).

Beginning with the collector and processor roles in xate harvesting, there are two important differences to note between the concessions, even though collectors and processors perform a very similar set of tasks across all three xate-harvesting concessions. The first difference between the concessions is the unit of measure used to quantify and prepare the harvested xate. Uaxactun operates on a unit of measure called a “rollo,” while Carmelita and CUSTOSEL operate on a unit called a “gruesa.” This unit difference is important to securing payment and changes the manner in which the xate is to be packaged for processing. The rollo contains 20 fronds while the gruesa contains 80 fronds. A higher price is earned for each gruesa than each rollo, but the overall average financial rewards remained similar because the total fronds collected on average, whether that be in rollos or gruesas, were the same. Uaxactun and Carmelita otherwise have the same operational structure and share the same break down of tasks and responsibilities between collectors and processors, while CUSTOSEL has a slightly different break down of tasks and responsibilities because there is no processing bodega at CUSTOSEL.

In Uaxactun, the collectors hike out to harvesting areas to cut the xate palm fronds. There are well defined guidelines for which palm fronds can be harvested and individual collectors and processors are trained to understand the standards. For instance, each palm is to have 8-10 leaves. The collectors carefully stack and package the palm fronds in sacks to be transported back to Uaxactun’s bodega. In Uaxactun, the majority of collectors go out to harvest for the day and return to their homes in Uaxactun at night, after depositing their day’s collection at the bodega. Once the collectors bring the collected and packaged xate palm fronds to the bodega, the processors take over. The processors at the bodega then classify, sort, and clean the xate palm fronds. Any fronds that were damaged by animals and insects, that were damaged in transportation to the bodega, or have other abnormalities are discarded. Once the valuable fronds

have been selected, they are grouped into rollos. This is the standard unit of measure used in Uaxactun. Each rollo is to have 20 xate palm fronds. After the rollos are bundled, they are packaged and wrapped up into large, woven polypropylene sacks for transportation. After this point, they will be able to be shipped nationally or exported.

In Carmelita, the collection and processing operations are largely the same as in Uaxactun, minus the dwelling conditions and locations of the xate collectors. While some collectors operate in this fashion in Carmelita, there are many more groups of camps far out into the forested areas. The collectors who work out in the forests in Carmelita stay in the camps for months at a time. This is the second difference in the operations and structure between the xate-harvesting concessions. The interview team was driven an hour into the forest to meet with and interview the collectors at one such camp. They each have tarps, mosquito nets, and hammocks. They have stores of food items and the ability to cook over fire. While working in the camps, the collectors serve as the processors as well and take on dual duties. They sort the xate palm fronds into a unit referred to as a “gruesa,” which contains 80 palm fronds, as opposed to Uaxactun’s rollo of 20 fronds. The gruesas are packaged in woven polypropylene sacks, just as processors in the bodegas do. Other concession members that do not work in the camps bring them potable water every week and pick up the bundles of processed gruesas that have been collected. There are still other collectors in Carmelita that just go out to harvest for the day and return their bundles to Carmelita’s bodega, but it is relatively more common to have people out at the camps in Carmelita than it is to have people out in camps in Uaxactun. Of the collectors interviewed in Carmelita, 67% were out living and working in the camps for extended periods of time. In Uaxactun, no interviewed participants were staying out in camps for extended periods of time,

but 11% of interviewees said they sometimes packed tents and planned to stay out for one or more nights for their own convenience and harvesting prospects.

Because CUSTOSEL is a non-residential concession that does not have a bodega or processing facility of any kind, they work very closely with Carmelita. They also operate with the gruesa unit (80 xate palm fronds), and harvesters from Carmelita come to pick up CUSTOSEL's bundles of gruesas and take them back to their own bodega. When the collectors from Carmelita come to pick up the gruesas, they bring resources that CUSTOSEL otherwise would not have access to, such as potable water jugs and food, due to its location deep in the forest. The existence of this relationship between Carmelita and CUSTOSEL reveals that individual harvesters and the concessions themselves operate independently but work together and help each other when necessary. This relationship is also supported by the creation of ACOFOP in 1997, which is meant to represent all of the communities in unison (ACOFOP 2016). In order to accommodate the collectors from CUSTOSEL, there is a hub of three buildings that serve as a home base with dorm-style beds, a kitchen, and outhouses. Many of the collectors who work at CUSTOSEL utilize these accommodations and walk out to collection sites from this central hub. Similarly to the operations in Uaxactun, they go out to harvest for the day and return to the central accommodations in the evening. However, there are still groups of harvesters that choose to set up camps further out and harvest xate for extended periods of time. Both the collectors in the camps and in the central hub operate like Carmelita in the sense that the collectors must take on the dual role of collector and processor. Upon finishing collection for the day, the collectors then turn to the responsibilities of processing: classifying, sorting, cleaning, and bundling.

When the operations of the xate-harvesting concessions were compared to the ramon-harvesting concessions, the interview responses established there there is a less apparent division of labor between the collectors and processors of ramon than of xate. The same people that collect the ramon nut also are in charge of processing. The collection process is the same at all three concessions or cooperatives. The harvesters simply collect the ramon nuts that fall from the trees. The collected nuts are brought back to the concessions where they are classified and sorted. The nuts can fall from the tree green or brown. Both brown and green nuts can be kept, although they are used to make different products. Any nuts that are cracked open, seem to have animal bite marks, or have any other bad spots must be discarded. Once the valuable nuts have been sorted out, a cleaning and drying process takes place. This looks different at each of the ramon harvesting concessions and cooperatives. Different from the xate-harvesting concessions, ramon is always collected and reported on using the same unit of measurement, referred to as a “quintal.” One quintal is 100 pounds (libras in Spanish).

While Uaxactun harvests ramon, the harvesting that takes place there operates at a much smaller scale and is usually done by individuals. The harvest of xate in Uaxactun is the by far the largest NTFP operation, and it seems that most of the resources go to the harvest of xate and the labor force follows suit. There was not a mill or any other processing equipment for ramon at Uaxactun. The ramon nuts that are collected there are transported elsewhere to be classified and milled.

AMUL and ANSA both have their own drying techniques, mills, and kitchens. At AMUL, the cleaning and drying process is simple and organic. The nuts are cleaned and then laid out to dry in the sun. While some nuts are left whole, the majority of the ramon harvest will be milled into ramon flour. The flour can be used in many recipes and is worth a higher price

than whole nuts. The bulk flour generates the highest profit, according to statements from participants R3 and R4, and can be sold for 200 Quetzales per quintal, approximately \$28.57 USD. A quintal is a unit containing 100 pounds, making ramon flour worth approximately \$0.29 USD per pound. The cooperative also bakes and creates many of their own recipes and cultural dishes using the whole ramon nut or the nut flour. Ramon cookies are a popular ramon treat that AMUL bakes onsite. It is also used to make tortillas, horchata, salad dressings, tamales, and as a rub on certain meats. There are 7 women employed at AMUL that all share in the same responsibilities of collecting, cleaning and classifying, milling, and baking. Each of the women works 4 to 5 days per week, according to the individual responses of ramon harvesters to questions about their work hours per day and days per week (Participants R1, R2, R3, and R4). One of the women at AMUL worked in an administrative position and was in charge of working closely with ACOFOP to report on collections and needs. She expressed the desire for continued development and a potential partnership with some of the local ecotourism agencies. AMUL is working on a future development plan to bring in more economic resources by allowing more visitors to help raise funds for a new, larger mill. AMUL is also currently working with ACOFOP to apply for an organic processing and harvesting certification that would make their product more valuable in exportation.

ANSA has similar operations, but there are some differences in mechanical resources and staff. ANSA is a cooperative of 35 women. The women can harvest on their own and bring the nuts they collect to ANSA's facilities for processing. They go through the same classification, sorting, and cleaning process as AMUL, but they have hoop houses and an expansive set of drying tables that helps to expedite their cleaning and drying process. ANSA mills a lot of ramon into flour and bakes as well, but they also have a roaster. Another popular ramon product is

ramon coffee, and ANSA has the resources to produce it. The ramon nuts can be roasted the same way coffee beans are and then ground. It serves as a high energy, caffeine-free coffee substitute. ANSA produces many of the same food products that AMUL produces in addition to the ramon coffee. ANSA's operations seem slightly more structured, as they must be with a co-op staff that is five times the size of AMUL. ANSA permits three of their co-op members to work per day. Each member gets two to three 8-hour shifts per week. All responsibilities are shared on the shifts. ANSA is currently selling their flour, desserts, whole nuts, and coffee to local restaurants.

While the concessions operate separately, the roles and responsibilities of individual collectors and processors remain the same across all of the concessions, as observed when participants described their typical workday routines and duties. Whether they have harvesters working out in camps or returning to central, communal spaces after a day of harvesting, the accepted operational standards for collecting and processing are the same, even if some harvesters serve as both the collectors and processors depending on the concession, and even if the unit of measure of collected NTFPs is different. These similarities between all five harvesting concessions support that there is a general NTFP industry structure and set of operational procedures that supersedes any differences that might exist in the ways the concessions operate individually. This data was concluded through the observation of differences and responses of participants from all concessions in the harvest of both products and my interviews with ACOFOP (Participants 1 and 2). Additionally, the concessions seem to work together well and have common interests, aside from the fact that they are all united through ACOFOP. The alliance that CUSTOSEL and Carmelita have also supports the idea that these concessions operate and are structured similarly enough to easily work cohesively, and their alliance is not

the only one of its kind. As Carmelita and CUSTOSEL support each other in xate harvesting, residents from both Carmelita and Uaxactun support each other in ramon harvesting as well, working together and allowing members of different concessions to harvest in their own concession when resources are scarce.

When harvesters were asked about their relationships with coworkers, many expressed that they could work individually or together and that their concession felt like a second family (Participants 6, 7, and 9, all from Carmelita). Participant 14 from CUSTOSEL said, “Las relaciones con todos los hombres aquí, estamos unidos como uno. Solo estoy usted está aquí en este poema” (translated: “The relationships with all the men here, [it’s as if] we were united as one. I am only you [and you are me] here in this poem”). This feeling of a second family was especially true of harvesters that worked out in camps for extended periods of time. Some noted that if anything, there was friendly competition about who could collect the most in a day. No participants said they had any bad relationships with coworkers, although one collector from Carmelita noted that there could be political tension between the concessions (Participant 9).

Calculating Wages and Interpreting Income Portfolios

Determining income levels of participants proved to be much trickier than anticipated. When explicitly asked about their salaries or yearly wages, most participants became confused or did not know. Questions about income and wages were altered on the fly, as it was determined that most participants were either paid commissions that reflected what they were able to harvest, or they were paid a weekly or monthly lump sum. This fact reveals that the role held by the participant does not determine their wage. The average units collected and earnings per day for rollos of xate is 60 rollos (total of 1200 fronds), from which 70 Quetzales could be earned on average, making each rollo worth 1.16 Q (\$0.17 USD). The units collected and earnings per day

for gruesas of xate is 12 gruesas (960 total fronds), from which 50 Quetzales could be earned, making each rollo worth 3.85 Q (\$0.55USD).

Some participants did have salaries, however. The participants with salaries tended to be “socio de” (loosely, “associates” or “partners”) of certain concessions, meaning they were essentially established members that received additional benefits, such as a set salary, for their commitment to the concession. It was determined that being a member of a concession was not a necessary stipulation to live, work, or earn wages there; it just could provide wage and job security, although in some cases it could also mean more administrative duties. All harvesting participants interviewed that had administrative or managerial duties were associate members of their concession (Participants 4, 11, 12, 16, and 32). The questions about wages were designed to reveal information about financial security and how much NTFP harvesting contributed to their income portfolios. Participants were asked if they worked multiple jobs, which job provided their principal source of income if they worked more than one, how many people lived in their home, and how many people living in their home had jobs.

Once it was determined that very few harvesters had set income levels, the interview team began to ask questions that could reveal how much one could collect and earn on a daily basis. Instead of being asked how much money they could make, they were asked how many units (gruesas, rollos, or quintales) they could collect in a day on average. They were then about prices for the xate or ramon collected. The most frequent response for xate harvesters from any concession was 50 Quetzales (Q) in earnings each day, equivalent to \$7.14 USD. The average earnings were calculated at 60-70 Q per day. The lowest earnings reported was 40 Q per day, while two participants reported being able to earn up to 220Q per day (\$31.43 USD), even if they were not currently earning that much. Participants who were associate members of a concession

received 3500 Q per month (116.67 Q per day), which is around \$500 USD per month (\$16.67 USD per day).

The average number of gruesas that was collected by xate harvesters in Carmelita and CUSTOSEL per day was 12, which could earn them 50Q per day on average. The average number of rollos that could be collected per day by xate harvesters in Uaxactun was 60, which could earn them 70Q per day. Each of these values translates to 1500Q and 2100Q per month respectively. When compared to the 3500Q that associate concession members can earn, it pays to be a member. Additionally, some collectors also worked in the processing bodegas for extra income. Participant 19, male, said that he could collect 80 rollos of xate in a day, earning up to 10 Q for each rollo, and could earn up to 50 Q per day for staying to help in the bodega.

Average Xate Palms Collected and Average Wages Earned Per Unit

Unit	Average collected per day	Average earnings per day	Average price per unit	Average price per palm	Projected monthly earnings
Gruesas (80 fronds)	12	50	3.85	0.05	1500
Rollos (20 fronds)	60	70	1.16	0.06	2100

Ramon harvesting is a bit different. Because all of the women were cooperative members, they earned 65 Q per day, equivalent to \$9.29 USD. The women could collect 65 pounds of ramon nuts on a good day. When selling their product, it is worth the most milled into

flour and sold by the quintal. One quintal, or 100 pounds, of milled ramon flour is worth 200Q (\$28.57 USD) on average.

When trying to determine income portfolios and the breakdown of jobs that xate and ramon harvesters had to work, it was found that 44 out of 55, or 80%, of all workers depended on NTFP harvesting as their main income. Of the total harvesters, 35, or 64%, only worked the one job in NTFPs, while 20 harvesters, or 36% still had to work up to three multiple jobs to make ends meet

Number of Participants that rely on NTFPs for Main Income and Single Source of Income

Job Distinction	Number of Participants
Main Income	44
Only Job	35
Other Jobs	20

Influence of Gender on Roles

While gender identity was not explicitly asked about in this study, it was recorded as observed biological sex. There were zero female collectors of xate at any of the xate-harvesting concessions, but the majority of xate processors and bodega workers were female (64% female and 36% male). There were several males working in the bodegas in both Carmelita and Uaxactun, and all but one of the males interviewed in the bodegas said they were xate collectors who had chosen to help out in the bodegas for extra money. In Carmelita, of the five total bodega workers interviewed, two were female and three were male. The singular male who was not a xate collector earned his main source of income from processing in the bodega was from

Carmelita. Of potential importance to note, the male individual who worked full time in the bodega had a learning disability. One of the women working in the bodega was also involved in tourism and said that 50% of her income came from xate and 50% came from tourism. Every worker who was in Carmelita's bodega that day was able to be interviewed.

In Uaxactun, six bodega workers were able to be interviewed, five of which were female and one of which was male. As previously noted, Uaxactun demonstrated the starkest division of labor between men and women. While only six bodega workers consented to participate in the interviews, the workers in the bodega were observed and their genders recorded. Of those that participated, five were women and one was male (83% female and 17% male). Many did not wish to participate, and several women that were asked to participate were too young to participate (less than 18 years old). There were approximately 30 total people working in the bodega and only three of them were male. If all bodega workers would have been willing and able to participate, the female-male distribution of bodega workers would have been 90% female and 10% male. Every xate collector that came back to the bodega to drop their collected xate for the day while the interview team was there was male. Two of them returned from harvesting and stayed to work in the bodega. The men in the bodega were observed and seemed to be doing the heavy lifting of the packaged xate bundles, while the women were the ones doing the sorting, cleaning, and packaging into rollos. The bodega manager was female, and was overseeing the processors in addition to counting, packaging, and recording daily totals of the collected xate bundles for transport.

While there was not a distribution of responsibilities in ramon harvesting because collecting and processing was performed by everyone, all but one ramon harvester was female (92% female, 8% male). The single male harvested involved in the ramon industry was

interviewed at AMUL (Participant R2). He was not an associate member of the concession and did not rely on ramon harvesting for his main income. He said he came to AMUL every 8-10 days. He seemed to be more of a volunteer, and his main income was from agriculture, on his own family's owned and operated farm. Every participant in the collection and processing of ramon from both ANSA and Uaxactun was female (100% female workforce in these concessions).

The distribution of gender across both NTFPs and across all five concessions reveals a clear distribution of labor between men and women. Xate seems to be a male dominated industry, given that all xate collectors were male. However, the processing aspect of the xate harvesting industry is female dominated, at least in Uaxactun, where the females working there make up at least 83% of the bodega workforce. There were more males than females present and working in the bodega in Carmelita the day that the interview team visited, but 67% of those males were collectors first and processors second. Contrary to xate, ramon is a female dominated industry. The only male involved in the ramon industry worked in ramon on a periodic, volunteer basis when the concession needed assistance, but he did still earn wages at AMUL, but his income did not depend on ramon (Participant R2). Of all of the females interviewed in the ramon industry, 100% (12 participants), relied on ramon collection and production as their main source of income.

Male and Female Processors from Uaxactun and Carmelita, Total

Concession	Female Bodega Workers	Male Bodega Workers
Uaxactun	5	1
Carmelita	2	3

Age Trends, Income Portfolios, and Implications for Long-term Sustainability

There are several components that were revealed in this study that have the potential to affect the long-term sustainability of the NTFP industry. These components are age and income. A large majority of the labor force involved in the harvest of both ramon and xate is over 50 years old. Several interview participants expressed that fewer young people wanted to work in NTFPs, and that many young people were instead entering into the ecotourism industry. Further, while many participants said that NTFPs resulted in their main source of income, a large majority of participants had to work in the harvest of multiple NTFPs or have at least two jobs. Each of these components indicate that the NTFP industry could soon have a labor shortage, and there are also concerns about the ability of NTFPs to meet livelihood needs, if working in the industry means two or more jobs for most people. The long-term existence of the industry and economic sustainability of the industry will be examined, given the aging work force and the questionable ability of the industry to provide sustainable economic livelihoods.

Age Groups Involved in NTFPs and the Percentage of the Workforce They Make Up

Age Group	Number of Participants	Percent
18-25	5	10%
26-45	20	40%
46-64	18	36%
65+	7	14%

In addition to the data collected on age and income, another set of questions about the cultural importance of the NTFP industry and the importance of the industry for future generations was also asked. Participants were asked if they agreed or disagreed with the following statements:

1. I depend on the harvest of NTFPs in the Petén for my income.
2. The collection of NTFPs is an activity important to the culture of the Petén.
3. It is important for future generations harvest NTFPs.
4. I depend on ecotourism in the Petén for my income.
5. Ecotourism is a culturally important activity in the Petén.
6. It is important for future generations to work in the ecotourism industry in the Petén.

These questions and the responses of participants revealed a lot of information about individual perceptions of both industries. Recall that AMUL was interested in inviting more visitors to their concession for cultural ecotourism that could bring in revenue with new visitors. AMUL was creating a new development plan that included bungalows along the lake where tourists could stay and feel like they were experiencing more closely the daily life of a local resident of the Petén (Participant R3). This set of questions revealed that some participants, who also tended to be younger, were aware of the connection of the ecotourism industry to their own NTFP industry, even if they were not directly involved in tourism. Out of a total 55 participants,

only three responded that they directly participated in the tourism industry (5.5% of all participants). However, the number of respondents that said their income still depended on the ecotourism industry was drastically different. In the xate harvesting industry, 37.5% of participants said they depended on ecotourism for their income. Participant 22 said, “Obvio, porque viene la gente,” translated, “Obviously, it brings the people here.” In the ramon harvesting industry, 38.5% agreed that they also depended on ecotourism for their incomes. Of the entire industry for ramon and xate harvesting industry together, that puts 37.7% of respondents in agreement that ecotourism influences their own earnings indirectly.

In examining the agreement or disagreement responses of participants to the other questions about the NTFP and ecotourism industries, a total of 93.3% said NTFPs were important for the culture of the Petén (100% of ramon participants and 90.6% of xate participants). A total of 93.3% said NTFPs were important for future generations (100% of ramon participants and 90.6% of xate participants). Participants 7 and 8 said that harvesters need to start bringing their children with them to learn and work. The few participants that said NTFPs were not important for future generations were all under the age of 35. A total of 100% of participants in both ramon and xate said that they depended on NTFPs for their income, and 37.7% said that they also depended on ecotourism for their income, even if that dependence is indirect. A total of 100% of participants in both ramon and xate said that ecotourism is an important activity for future generations. A total of 97.6% of participants said that ecotourism is an important cultural activity in the Petén (100% of xate harvesters and 92.3% of ramon harvesters).

Agree or Disagree Statement Responses for NTFPs and Ecotourism Importance

NTFP/ECOT	Agree	Disagree
Agreements		
NTFP income	45	0
NTFP culture	42	3
NTFP future generations	42	3
ECOT income	20	25
ECOT culture	44	1
ECOT future generation	45	0

All of these components considered, it seems that the NTFP industry may have to adapt to the diverging needs and wants of future generations. Unlike the study conducted in the Periyar Tiger Reserve in India, which found that 82% of NTFP collectors did not want to continue harvesting NTFPs if other agricultural opportunities became available and 0% of collectors wanted their children to become NTFP collectors (Gubbi & MacMillan 2008), NTFP collectors in the MBR of Guatemala seem largely satisfied with the industry, enjoyed the freedom of the work, and 93.3% said that they felt the harvest of NTFPs was still important for future generations. However, the age break-down of participants reveals that fewer younger people are entering the NTFP workforce and accounts from several participants in this study say that the younger population is heading towards ecotourism instead (Participants ACOFOP1, ACOFOP2, R3). As ecotourism continues to be a growing industry that attracts younger members of the workforce, the NTFP harvesting industry will have to find a way to continue growing as well.

Especially since the NTFP harvesting concessions of Guatemala have been heralded as a great development with the dual purpose of social development and environmental conservation, the younger workforce will have to find it attractive to enter into NTFPs for the concessions communities and industry structure to continue to be successful.

CONCLUSION AND FUTURE RECOMMENDATIONS

This study employed a set of interviews administered to participants in the harvest of two NTFPs in the Maya Biosphere Reserve: the ramon nut and the xate palm. The purpose of these interviews was to determine the overall structure of the NTFP industry in the MBR, identify the types of roles that exist, the income that participants can earn, and if there are any difference to the structures, roles, and earnings across different NTFPs and across different concessions communities. The findings indicate that there are two roles in the NTFP harvesting industry, collector and processor, and these roles do not change when examined across NTFPs and concession communities. The study reveals that there is also a general, overarching structure of the NTFP industry that supersedes any minor differences that could exist between concession communities. While 64% of harvesters only had to work their one job in NTFP harvesting, 36% of harvesters still had to work up to three multiple jobs to meet their financial needs. This inadequacy of the earnings to meet all participants' needs raises concerns about the economic sustainability of the NTFP industry, leaving the ability of the NTFP harvesting industry to provide a sustainable economic livelihood in question.

In addition to the economic concerns raised, there are potential implications for the long-term sustainability of the industry as a whole that also need to be considered. The age demographic of the industry implies diverging needs of want of current youth and young adults, as only 10% of the workforce is aged 18-25, while 76% of the workforce is 26-64 years of age. Several participants expressed that many young people would prefer to enter into the ecotourism industry, while makes a future labor shortage in NTFPs possible. To avoid this, there is a need to adapt to the desires of young workers to ensure that this industry will be able to maintain a stable

workforce. This further has the potential to put future conservation efforts in jeopardy, if there are not enough able-bodied people to work in NTFPs and conservation. Given all of these potential future risks, the long-term sustainability of the NTFP industry as a means of livelihood and conservation is in question.

Recommendations for future research involve creating sustainable development plans and a possible alliance and dependency between the NTFP and ecotourism industries. This study found that 44% of workers said that they depended on ecotourism for their incomes even if they were not directly involved in tourism, likely because they understood an interdependency between these two industries. The example being set by AMUL is emphasized as highly important for the continued social and economic development of NTFP harvesting communities, in which the NTFP harvesting concession hopes to incorporate ecotourism and community tourism into their production model to help raise funds to expand operations. This seems to be a progressive and strategic way to best utilize the available resources and income streams to their own benefit for future growth and production.

REFERENCES

- ACOFOP. (2016) Quienes Somos: Sobre ACOFOP. Asociacion de Comunidades Forestales de Peten. Retrieved from <http://www.acofop.org/index.php/nosotros/quienes-somos>.
- Angelsen, A., Jagger, P., Babigumira, R., Belcher, B., Hogarth, N. J., Bauch, S., Borner, J., Smith-Hall, C., Wunder, S. (2014). Environmental income and rural livelihoods: A global comparative analysis. *World Development*, 64, S12-S28. DOI: <https://doi.org/10.1016%2Fj.worlddev.2014.03.006>
- Bocci, C. (2018). Evaluating ethics: An analysis of consumer preferences for environmentally friendly and ethically responsible production practices. *The Ohio State University: Doctoral Dissertation in Agricultural, Environmental and Development Economics*.
- Fortmann, L. K. (2014). Assessing factors that contribute to reduced deforestation and successful community forest management in Guatemala's Maya Biosphere Reserve. *The Ohio State University: Graduate Program Dissertation in Agricultural, Environmental and Development Economics*.
- Gubbi, S. & MacMillan, D. C. (2008). Can non-timber forest products solve livelihood problems? A case study from Periyar Tiger Reserve, India. *Oryx*, 42(2), 222-228. DOI: <https://doi.org/10.1017/S0030605308071111>
- Hodgdon, B. D., Hughell, D., Ramos, V. H., and McNab, R. B. (2015). Deforestation trends in the Maya Biosphere Reserve, Guatemala. *Rainforest Alliance*. Retrieved from <https://www.rainforest-alliance.org/sites/default/files/2016-08/MBR-Deforestation-Trends.pdf>.
- Ndanyalasi, H. J., Bitarih, R., and Dovie, D. B. K. (2007). Harvesting of non-timber forest products and implications for conservation in two montane forests of East Africa. *Biological Conservation* 134, 242-250. DOI: <https://doi:10.1016/j.biocon.2006.06.020>

APPENDIX

Interview Question Set A: Field-level Participants, English

Interview: Analysis of citizen participation in NTFP industry in Guatemala

Introduction

Thank you for your willingness to participate in an interview about your involvement in [Ramon, Xate]. The interviews are being carried out by students from The Ohio State University in the United States. Your answers will help me better understand the process for harvesting and processing [Ramon, Xate], as well as the work you do. I am interested in learning more about the individuals and communities who participate in the NTFP industry to understand what types of jobs exist and who holds them. Specifically, I will be asking questions to individuals like you who participate in NTFPs about your job in [Ramon, Xate], what you do in a typical workday, how you got involved, if you work any other jobs, and any other experiences you would like to share.

This interview is completely voluntary, and the time duration is flexible and adaptable to your preferences. Answering the proposed questions should take no more than 1 hour of your time; however, the interview can last up to two hours if you wish to provide extensive information about your experiences. If at any time during this interview you need or want to quit the interview process for any reason, you are absolutely free to quit the interview process and your responses will be discarded. If there are any questions that you do not wish to answer, but do not wish to discard your entire interview, you are welcome to say you would like to skip any question at any time during the interview process.

I would like to record this interview. Recording is completely voluntary, and you can opt out at any time and your responses will be discarded. I can still conduct the interview and write your answers if you do not wish to be recorded. Are you willing to be recorded?

If Yes, proceed to next paragraph

If No, then ask if they are willing to proceed with the interview with me writing their answers down on paper.

Your responses to the interview questions will be completely confidential. The research team will not provide individual responses from this interview to people outside of the research team. The research team will only report aggregate data.

Are you older than 18, and would you like to participate in this interview?

Yes No

Do you understand that this interview is completely voluntary?

Yes No

Questions (Sets A and B)

(Announce to participant when recording is beginning)

A. Field-level participants

1. Where are you from? (city, country)
City _____
Country _____
2. Did you move here to work in the NTFP industry or are you a long-time resident?
 - a. Concessions
 - b. Forestry in general
 - c. NTFP industry
 - d. Long-time resident
 - e. Other
 - f. Prompts: Are your parents from here? Did you grow up here?_____
3. What is your age?
_____ (years)
4. Can you tell me about your cooperative/concession?
 - a. When was it started?
 - b. Why was it started?_____
5. When did you first start working in this concession or in NTFPs?
 - a. Were you previously involved in NTFPs elsewhere?_____
6. Why did you decide to start working here?
 - a. Prompts: Family ties, connection to nature, just a job?
 - b. Some combination of motives? Please explain briefly._____
7. Describe a typical work day (i.e. what is the job you complete like?)
 - a. What is the [ramon, xate] harvesting process like?
 - b. Is work with [ramón, xate] seasonal?
Yes No
 - c. Which seasons can you harvest [ramón, xate]?
 - d. What tasks do you complete (your duties)?
 - e. Do you always do the same thing or do your duties change on a regular basis? If so, what other activities do you do?_____
- f. What is relationship with your co-workers like?

g. How many hours do you work in a typical day and how many days per week do you work?

_____ hours per day
_____ days per week

h. What is your hourly wage (or a typical hourly wage)?

_____ Quetzales/hour

i. Do you get regular breaks?

Yes No

j. Is your work physically exhausting?

- How tired do you feel at the end of the day?

1 2 3 4 5

- Do you feel satisfied after your work day?

1 2 3 4 5

8. How much do you earn per year from your involvement in NTFPs on average?

- a. 0-1000Q
- b. 1000-3000Q
- c. 3000-6000Q
- d. 6000-10,000Q
- e. 10,000+Q

9. What types of products are produced with [ramon, xate]?

10. Are there products that this cooperative/concession offers for the community?

- a. Are there other in-kind benefits? If yes, please explain

11. Do you interact with people who are involved other parts of the NTFP industry?

- a. Prompts: e.g. consumers, distributors, concession managers?
- b. If so, what is your relationship with them like?
- c. In what instances do you interact?
- d. How often do you interact?
- e. Do you report to anyone (e.g. concession manager, NTFP industry, ACOFOP, boss at the location at which you work?)

12. Do you work other jobs, or is this your main source of income?

- a. If you work other jobs, how many other jobs do you work?
_____ (number of other jobs)
- b. If you work other jobs, which provides your main source of income?
- c. If you work other jobs, what percentage or proportion of your income is provided by your work in the NTFP industry?

13. Do you receive any benefits from working in the [ramon, xate] harvesting process? If yes, please explain.

14. How many people live in your household?

_____ people

15. How many people in your household work?

a. Do you support all of the people who live in your household?

_____ number of people in household that work

16. What do you like about what you do?

17. Have you ever encountered any negative experiences that you would like to share?

18. Would you like to share any other information about your involvement in [Ramon, Xate]?

19. Is there anything you felt like I left out of the interview?

Yes No

a. If so, what else would you like to share?

Interview Question Set B: Concession Managers, English

Interview: Analysis of citizen participation in NTFP industry in Guatemala

Introduction

Thank you for your willingness to participate in an interview about your involvement in [Ramon, Xate]. The interviews are being carried out by students from The Ohio State University in the United States. Your answers will help me better understand the process for harvesting and processing [Ramon, Xate], as well as the work you do. I am interested in learning more about the individuals and communities who participate in the NTFP industry to understand what types of jobs exist and who holds them. Specifically, I will be asking questions to individuals like you who participate in NTFPs about your job in [Ramon, Xate], what you do in a typical workday, how you got involved, if you work any other jobs, and any other experiences you would like to share.

This interview is completely voluntary, and the time duration is flexible and adaptable to your preferences. Answering the proposed questions should take no more than 1 hour of your time; however, the interview can last up to two hours if you wish to provide extensive information about your experiences. If at any time during this interview you need or want to quit the interview process for any reason, you are absolutely free to quit the interview process and your responses will be discarded. If there are any questions that you do not wish to answer, but do not wish to discard your entire interview, you are welcome to say you would like to skip any question at any time during the interview process.

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If Yes, proceed to next paragraph

If No, then ask if they are willing to proceed with the interview with me writing their answers down on paper.

Your responses to the interview questions will be completely confidential. The research team will not provide individual responses from this interview to people outside of the research team. The research team will only report aggregate data.

Are you older than 18, and would you like to participate in this interview?

Yes No

Do you understand that this interview is completely voluntary?

Yes No

Questions (Sets A, B, and C)

(Announce to participant when recording is beginning)

B. Concession managers

1. Where are you from? (city, country)

City _____

Country _____

2. Did you move here to work in the concessions or in the NTFP industry specifically, or are you a long-time resident?

a. Concessions

b. Forestry in general

c. NTFP industry

d. Long-time resident

e. Other

f. Prompts: Are your parents from here? Did you grow up here?

3. What is your age?

_____ (years)

4. How many people live in your household?

_____ people

5. How many people in your household work?

a. Do you support all of the people who live in your household?

_____ number of people in household that work

6. Can you tell me about your concession?
 - a. When was it started?
 - b. Why was it started?
-

7. When did you first start working in this concession or with NTFPs?
 - a. Were you previously involved in NTFPs elsewhere?
-

8. Why did you decide to start working in the concessions?
 - a. Prompts: Family ties, connection to nature, conservation, NTFPs, just a job?
 - b. Some combination of motives? Please explain briefly.
-

9. Can you describe the [ramon, xate] harvesting process?
 - a. How many workers are necessary to harvest a quintal of {ramon, xate}?
 - b. Is work with [ramón, xate] seasonal?
 - c. Which seasons can you harvest [ramón, xate]?
-

10. Approximately how much money does a [ramón, xate] worker earn on average each day that they spend harvesting [ramón, xate]??
 - a. Do you think this is enough to survive?
 - b. Do the majority of [ramón, xate] workers have other jobs besides harvesting [ramón, xate]?
-

11. Describe a typical work day (i.e. what is the job you complete like?)
 - a. What tasks do you complete (your duties)?

b. Do you always do the same thing or do your duties change on a regular basis? If so, what other activities do you do?

c. How many hours do you work in a typical day and how many days per week do you work?

_____ hours per day

_____ days per week

d. What is your hourly wage (or a typical hourly wage)?

_____ Quetzales/hour

e. What is typical hourly wage for individuals who work in harvesting, processing, transportation or other field-work areas of the NTFP industry?

_____ Quetzales/hour

f. Is your work physically exhausting?

• How tired do you feel at the end of the day?

1 2 3 4 5

• Do you feel satisfied after your work day?

1 2 3 4 5

12. Do you interact with people who are involved other parts of the NTFP industry?

a. Prompts: e.g. field workers, consumers, distributors, marketers?

b. If so, what is your relationship with them like?

c. In what instances do you interact?

d. How often do you interact?

13. Do workers involved in the NTFP industry report to you?

Yes No

If so, please briefly describe who (i.e. the types or positions of the workers that report to you.

14. Do you report on the status of the concession or the industries that concession participates in to anyone?

a. Prompts: ACOFOP, another concession council, the government, any governmental ministries?

Yes No

If so, please briefly describe to whom you report and in what instances.

15. What are the main industries that your concession participates in?

- a. NTFPs
 - b. Timber
 - c. Agroforestry
 - d. Ecotourism
 - e. Other
-

16. Do you have to deal with conflicting viewpoints on the best way to manage your concession?

- a. If so, what are some of the differing viewpoints?
 - b. Have you had to mediate any issues between people or groups with different views?
-

17. Do you work other jobs, or is this your main source of income?

a. If you work other jobs, how many other jobs do you work?

□ _____ (number of jobs)

b. If you work other jobs, which provides your main source of income?

c. If you work other jobs, what percentage or proportion of your income is provided by your work in the NTFP industry?

18. What type of products do you produce with ramón?

a. Do you export ramón products?

If “no,” skip to the next question.

b. Which products do you export?

c. To which countries do you export?

d. How do you prepare the product for export?

e. Are there any special certifications necessary to export ramón products? What are these certifications?

19. Are there products that this cooperative/concession offers for the community?

a. Are there other in-kind benefits? If yes, please explain

20. Are there benefits for workers? If yes, please explain.

21. What do you like about what you do?

22. Have you ever encountered any negative experiences that you would like to share?

23. Would you like to share any other information about your involvement in [Ramon, Xate]?

24. Is there anything you felt like I left out of the interview?

Yes No

a. If so, what else would you like to share?

Entrevista: Análisis de la participación ciudadana en la industria de PFNM en Guatemala.

Introducción

Gracias por su disposición a participar en una entrevista sobre su participación en [Ramon, Xate]. Las entrevistas están siendo realizadas por estudiantes de la Universidad Estatal de Ohio en los Estados Unidos. Sus respuestas me ayudarán a comprender mejor el proceso de recolección y procesamiento [Ramon, Xate], así como el trabajo que realiza. Me interesa aprender más sobre los individuos y las comunidades que participan en la industria de los PFNM para comprender qué tipos de trabajos existen y quiénes los ocupan. Específicamente, haré preguntas a personas como usted que participan en PFNM sobre su trabajo en [Ramon, Xate], qué hacen en una jornada laboral típica, cómo se involucraron, si trabajan en otros trabajos y cualquier otra experiencia que tengan. quisiera compartir

Esta entrevista es completamente voluntaria, y la duración del tiempo es flexible y adaptable a sus preferencias. Responder a las preguntas propuestas no debe tomar más de 1 hora de su tiempo; sin embargo, la entrevista puede durar hasta dos horas si desea proporcionar información extensa sobre sus experiencias. Si en algún momento durante esta entrevista necesita o desea abandonar el proceso de la entrevista por cualquier motivo, es absolutamente libre de hacerlo y se descartarán sus respuestas. Si hay alguna pregunta que no desea responder, pero no desea descartar toda su entrevista, le invitamos a decir que desea omitir cualquier pregunta en cualquier momento durante el proceso de la entrevista.

Me gustaría grabar esta entrevista. La grabación es completamente voluntaria, y puede optar por no participar en cualquier momento y sus respuestas serán descartadas. Todavía puedo realizar la entrevista y escribir sus respuestas si no desea ser grabado. ¿Estás dispuesto a ser grabado?

En caso afirmativo, pasar al siguiente párrafo.

Si la respuesta es No, pregúnteles si están dispuestos a continuar con la entrevista conmigo escribiendo sus respuestas en un papel.

Sus respuestas a las preguntas de la entrevista serán completamente confidenciales. El equipo de investigación no proporcionará respuestas individuales de esta entrevista a personas fuera del equipo de investigación. El equipo de investigación solo reportará datos agregados.

¿Tiene más que 18 años y le gustaría participar en esta entrevista?

Si No

¿Entiendes que esta entrevista es completamente voluntaria?

Si No

Preguntas (Grupos A y B)

(Anuncie al participante cuando comience la grabación)

A. Trabajadores del campo

1. De donde eres (ciudad, País)

- a. Ciudad _____
 - b. País _____
2. ¿Se mudó aquí para trabajar en la industria de los PFNM o es un residente de larga duración?
 - a. Concesiones
 - b. Manejo forestal en general
 - c. Industria de PFNM
 - d. Residente de larga duración
 - e. Otro
 - f. Recordatorios: ¿Son tus padres de aquí? ¿Has crecido aquí?

 3. ¿Cuántos años tiene?
 - a. _____ (años)
 4. ¿Me puedes decir de su cooperativa / concesión?
 - a. ¿Cuándo comenzó?
 - b. ¿Por qué comenzó?

 5. ¿Cuándo comenzó a trabajar en esta concesión o en PFNM?
 - a. ¿Estuvo involucrado anteriormente en PFNM en otros lugares?

 6. ¿Por qué decidiste comenzar a trabajar aquí?
 - a. Recordatorios: ¿Lazos familiares, conexión con la naturaleza, solo trabajo?
 - b. ¿Alguna combinación de motivos? Por favor explique brevemente.

 7. Describa un día de trabajo típico (es decir, ¿cómo es el trabajo que realiza?)
 - a. ¿Cómo es el proceso de cosecha [ramon, xate]?
 - b. ¿El trabajo con [ramón, xate] es estacional?

Si	No
----	----
 - c. ¿En qué estaciones puedes cosechar [ramón, xate]?
 - d. ¿Qué papeles realizas (tus deberes, trabajos)?
 - e. ¿Siempre hace lo mismo o sus deberes cambian regularmente? Si es así, ¿qué otras actividades haces?

 - f. ¿Cómo es la relación con tus compañeros de trabajo?

 - g. ¿Cuántas horas trabaja en un día típico y cuántos días a la semana trabaja?

_____	horas al día
_____	días por semana
 - h. ¿Cuánto gana por cada quintal que colecta usted?
 - i. ¿Cuánto gana cada día que recolecciones o cosechas?
 - i. ¿Tienes descansos regulares?

Si	No
----	----

- j. ¿Qué tan cansado se siente al final del día?
 1 2 3 4 5
- k. ¿Qué tan satisfecho se siente después de su jornada laboral?
 1 2 3 4 5
8. ¿Cuánto gana por año por su participación en los PFNM en promedio?
 a. 0-1000Q
 b. 1000-3000Q
 c. 3000-6000Q
 d. 6000-10,000Q
 e. 10,000 + Q
9. ¿Qué tipos de productos se producen con [ramon, xate]?
-
10. ¿Hay productos que ofrece esta cooperativa / concesión para la comunidad?
 a. ¿Hay otros beneficios en especie? En caso afirmativo, explíquelo por favor
-
11. ¿Interactúa con personas que están involucradas en otras partes de la industria de PFNM?
 a. Recordatorios: por ejemplo ¿consumidores, distribuidores, gestores de concesiones?
 b. Si es así, ¿cómo es tu relación con ellos?
 c. ¿En qué instancias interactúas?
 d. ¿Con qué frecuencia interactúas?
 e. ¿Informa a alguien? (¿por ejemplo, jefe de la concesión, la industria de PFNM, ACOFOP, el/la jefe de la ubicación en la que trabaja?)
-
12. ¿Trabajas en otros trabajos o es tu principal fuente de ingresos?
 a. Si trabaja en otros trabajos, ¿cuántos otros trabajos trabajan?
 _____ (número de otros trabajos)
 b. Si trabaja en otros trabajos, ¿cuál es su principal fuente de ingresos?
 c. Si trabaja en otros trabajos, ¿qué porcentaje o proporción de sus ingresos proviene de su trabajo en la industria de los PFNM?
-
13. ¿Recibe algún beneficio de su trabajo en el proceso de cosechar [ramon, xate]? En caso afirmativo, explíquelo por favor.
-
14. ¿Cuántas personas viven en tu casa?
 _____ gente
15. ¿Cuántas personas en tu hogar trabajan?
 a. ¿Apoya a todas las personas que viven en su hogar?
 _____ número de personas en el hogar que trabajan
-

Para las seis siguientes preguntas (16-21), por favor indique usted si está muy en desacuerdo, en desacuerdo, neutral, de acuerdo, o muy de acuerdo con las siguientes declaraciones.

(Lea las opciones y circule el número apropiado.)

Cuan de acuerdo está usted con lo siguiente de 1 a 5:

16. Dependo de la cosecha de productos forestales no maderables del Petén para mis ingresos económicos.

1 2 3 4 5

17. La recolección de productos forestales no maderables es una actividad de importancia cultural en el Petén.

1 2 3 4 5

18. Es importante que las generaciones futuras cosechen productos forestales no maderables.

1 2 3 4 5

19. Dependo de ecoturismo en el Petén para mis ingresos económicos.

1 2 3 4 5

20. El ecoturismo es una actividad de importancia cultural en el Petén.

1 2 3 4 5

21. Es importante que las generaciones futuras trabajen en la industria de ecoturismo en el Petén.

1 2 3 4 5

22. ¿Qué te gusta de lo que haces?

23. ¿Alguna vez has encontrado alguna experiencia negativa que te gustaría compartir?

24. ¿Le gustaría compartir cualquier otra información sobre su participación en [Ramon, Xate]?

25. ¿Hay algo que usted quiere agregar que yo no he preguntado en la entrevista?

Si No

a. Si es así, ¿qué más te gustaría compartir?

Entrevista: Análisis de la participación ciudadana en la industria de PFNM en Guatemala.

Introducción

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En caso afirmativo, pasar al siguiente párrafo.

Si la respuesta es No, pregúnteles si están dispuestos a continuar con la entrevista conmigo escribiendo sus respuestas en un papel.

Sus respuestas a las preguntas de la entrevista serán completamente confidenciales. El equipo de investigación no proporcionará respuestas individuales de esta entrevista a personas fuera del equipo de investigación. El equipo de investigación solo reportará datos agregados.

¿Tiene más que 18 años y le gustaría participar en esta entrevista?

Si No

¿Entiendes que esta entrevista es completamente voluntaria?

Si No

Preguntas (Grupos A y B)

(Anuncie al participante cuando comience la grabación)

B. Los jefes de las concesiones

1. De donde eres (ciudad, País)
 - a. Ciudad _____
 - b. País _____
2. ¿Se mudó aquí para trabajar en la industria de los PFNM o es un residente de larga duración?
 - a. Concesiones
 - b. Silvicultura en general
 - c. Industria de PFNM
 - d. Residente de larga duración
 - e. Otro
 - f. Recordatorios: ¿Son tus padres de aquí? ¿Has crecido aquí?

3. ¿Cuántos años tiene?
 - a. _____ (años)
4. ¿Cuántas personas viven en tu casa?
_____ gente
5. ¿Cuántas personas en tu hogar trabajan?
 - a. ¿Apoya a todas las personas que viven en su hogar?
_____ número de personas en el hogar que trabajan
6. ¿Me puedes decir de su cooperativa / concesión?
 - a. ¿Cuándo comenzó?
 - b. ¿Por qué comenzó?

7. ¿Cuándo comenzó a trabajar en esta concesión o en PFNM?
 - a. ¿Estuvo involucrado anteriormente en PFNM en otros lugares?

8. ¿Por qué decidiste comenzar a trabajar aquí?
 - a. Recordatorios: ¿Lazos familiares, conexión con la naturaleza, solo trabajo?
 - b. ¿Alguna combinación de motivos? Por favor explique brevemente.

9. ¿Puedes describir el proceso de cosecha de [ramon, xate]?
 - a. ¿Cuántos trabajadores son necesarios para cosechar una gruesa de ramon, xate]?
 - b. ¿El trabajo con [ramón, xate] es estacional?
 - c. ¿En qué estaciones puedes cosechar [ramón, xate]?

10. Aproximadamente, ¿cuánto dinero gana un trabajador de [ramón, xate] en promedio cada día que gasta la cosecha de [ramón, xate]?
 - a. ¿Crees que esto es suficiente para sobrevivir?
 - b. ¿La mayoría de los trabajadores de [ramón, xate] tienen otros trabajos además de cosechar [ramón, xate]?

11. Describa un día de trabajo típico (es decir, ¿cómo es el trabajo que realiza?)
- ¿Qué papeles realizas (tus deberes, trabajos)?
 - ¿Siempre hace lo mismo o sus deberes cambian regularmente? Si es así, ¿qué otras actividades haces?
-
- ¿Cuántas horas trabaja en un día típico y cuántos días a la semana trabaja?
 _____ horas al día
 _____ días por semana
 - ¿Cuál es su salario por hora (o un salario por hora típico)?
 _____ Quetzales/hora
 - ¿Cuál es el salario por hora típico para las personas que trabajan en la cosecha, procesamiento, transporte u otras áreas de trabajo de campo de la industria de PFNM?
 - _____ quetzales / hora
 - ¿Qué tan cansado se siente al final del día?
 1 2 3 4 5
 - ¿Qué tan satisfecho se siente después de su jornada laboral?
 1 2 3 4 5
12. ¿Interactúa con personas involucradas en otras partes de la industria de los PFNM?
- Recordatorios: por ejemplo, ¿trabajadores de campo, consumidores, distribuidores, comercializadores?
 - Si es así, ¿cómo es tu relación con ellos?
 - ¿En qué instancias interactúas?
 - ¿Con qué frecuencia interactúas?
-
13. ¿Los trabajadores involucrados en la industria de PFNM le reportan a usted?
- Si No
- Si es así, describa brevemente quién (es decir, los tipos o cargos de los trabajadores que le informan).
-
14. ¿Informa sobre el estado de la concesión o las industrias en las que la concesión participa a alguien?
- Recordatorios: ¿ACOFOP, otro consejo de concesiones, el gobierno, algún ministerio gubernamental?
 Si No
 - Si es así, describa brevemente a quién informa y en qué casos.
-
15. ¿Cuáles son las principales industrias en las que participa su concesión?
- PFNM
 - Madera
 - Agroforestería
 - Ecoturismo
 - Otro _____

16. ¿Tiene que lidiar con puntos de vista conflictivos sobre la mejor manera de administrar su concesión?

- a. Si es así, ¿cuáles son algunos de los diferentes puntos de vista?
- b. ¿Ha tenido que mediar algún problema entre personas o grupos con diferentes puntos de vista?

17. ¿Trabaja en otros trabajos o esto es tu principal fuente de ingresos?

- a. Si trabaja en otros trabajos, ¿cuántos otros trabajos trabaja?
_____ (número de trabajos)
- b. Si trabaja en otros trabajos, ¿cuál es su principal fuente de ingresos?
- c. Si trabaja en otros trabajos, ¿qué porcentaje o proporción de sus ingresos proviene de su trabajo en la industria de los PFM?

18. ¿Qué tipo de productos se producen con ramón?

- a. ¿Exporta productos de ramón?

Si la respuesta es "no", pase a la siguiente pregunta.

- b. ¿Qué productos exportas?
- c. ¿A qué países exportas?
- d. ¿Cómo se prepara el producto para la exportación?
- e. ¿Hay alguna certificación especial necesaria para exportar productos ramón?
¿Cuáles son estas certificaciones?

19. ¿Hay productos que ofrece esta cooperativa / concesión para la comunidad?

- a. ¿Hay otros beneficios en especie? En caso afirmativo, explíquelo por favor

20. ¿Hay beneficios para los trabajadores? En caso afirmativo, explíquelo por favor.

Para las seis siguientes preguntas (21-26), por favor indique usted si está muy en desacuerdo, en desacuerdo, neutral, de acuerdo, o muy de acuerdo con las siguientes declaraciones.

(Lea las opciones y circule el número apropiado.)

Cuan de acuerdo está usted con lo siguiente de 1 a 5:

21. Dependo de la cosecha de productos forestales no maderables del Petén para mis ingresos económicos.

1 2 3 4 5

22. La recolección de productos forestales no maderables es una actividad de importancia cultural en el Petén.

1 2 3 4 5

23. Es importante que las generaciones futuras cosechen productos forestales no maderables.
1 2 3 4 5

24. Dependo de ecoturismo en el Petén para mis ingresos económicos.
1 2 3 4 5

25. El ecoturismo es una actividad de importancia cultural en el Petén.
1 2 3 4 5

26. Es importante que las generaciones futuras trabajen en la industria de ecoturismo en el Petén.
1 2 3 4 5

27. ¿Qué le gusta de lo que hace?

28. ¿Alguna vez has encontrado alguna experiencia negativa que te gustaría compartir?

29. ¿Le gustaría compartir cualquier otra información sobre su participación en [Ramon, Xate]?

30. ¿Hay algo que sentiste como si me hubiera dejado fuera de la entrevista?

Si No

a. Si es así, ¿qué más te gustaría compartir?
