REPORT

Forest owners' perceptions of ecotourism: Integrating community values and forest conservation

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Abstract The use of forest land for ecotourism has been well accepted due to its ability to provide income to local people and to conserve the forest. Preparing the forest with infrastructure to attract and educate visitors has been reported of importance. This study applied Q methodology in a small rural community of the State of Puebla, Mexico, to reveal forest owners' perceptions to build infrastructure in their forest as part of their ecotourism project. It also discloses forest owners' underlying motives to use their forest for ecotourism. Ecotourism is perceived as a complementary activity to farming that would allow women to be involved in community development. Low impact infrastructure is desired due to forest owners' perception to preserve the forest for the overall community well-being.

Keywords Ecotourism · Small-scale forest management · Q methodology · Perceptions

INTRODUCTION

Ecotourism is defined as “responsible travel to natural areas that conserves the environment and improves the well-being of local people.” (TIES 1990). Forest plays a significant role in ecotourism around the world, particularly in developing nations (Richardson 2010) where the economic benefits that can be generated are significant to low-income families. Some other benefits obtained from ecotourism are the protection of forest, wildlife conservation, preservation of cultural traditions, gender equity, and social cohesion (Shuifa et al. 2011; Stem et al. 2003). It also opens opportunities for small local business thus creating employment for local residents (Lee et al. 2010).

Tourism industry in Mexico contributes to 8.6 % of country's GNP generating 2 million jobs (SECTUR 2011).

In recent years, the demand for nature-based tourism and outdoor recreation has increased, principally to community-based ecotourism projects (Yanza 2012). This trend is of great relevance for the development of rural Mexico. According to DOF (2013), half of the Mexican rural population lives in extreme poverty, women are the most affected due to large migration of men. The State of Puebla for instance, occupies the number 4th place with high levels of migrants, principally to US.

To develop nature-based tourism in small communities in Mexico, Xola (2009) recommends improving the quality and quantity of the services and infrastructure that are currently being offered to tourists. Tourists visit natural places for reasons such as recreation, education, and solitude among others (Manning and Anderson 2012). Although natural appearance is the most valuable asset in a nature-based tourism, facilities such as tables, toilets, educational signs, parking areas, and lodges are factors to attract people to the forest to enrich their enjoyment and experience of ecotourism (Lee et al. 2010). An assessment of nature-based/adventure travel in Mexico observed that one of the challenges to implement travel to community-based projects, particularly in remote areas, is the lack of proper facilities for tourists to be comfortable (Xola 2009). Although some of those facilities can be built outside the forest, some others like informative signs and camping areas require being on site to provide environmental education to tourists and stimulate the sensitivity of the visitor toward the environment (Cunha et al. 2010).

The aforementioned reasons imply that forest owners who are using their forest for ecotourism need to consider the integration of a plan to equip the forest with infrastructure to attract more visitors (Font and Tribe 2000). It is well known that sustainable plans require the integration of three major components, ecological, economic, and social.

Integrating the social component into forest planning can be daunting because there are few programs that directly acknowledge forest owners' plurality of values and interests in relation to forest management and conservation (Pierce-Colfer 2005; Menzies 2007).

Long (2012, p. 28) stated that understanding local residents' perceptions of tourism is fundamental for the sustainability of "any kind of tourism development." Studies on people's perceptions of ecotourism are proliferating. Researchers have studied perceptions of local residents on ecotourism (Lai and Nepal 2006), effects of ecotourism in pollution and environmental degradation (Pinheiro et al. 2011; Bhuiyan et al. 2012), and community-based ecotourism (Adam et al. 2012). In addition, visitors' perceptions have been assessed to evaluate environmental impacts (Chin et al. 2000) and the sustainability of ecotourism (Tsaour et al. 2006).

When planning for environmental management, it is important to acknowledge that stakeholders possess a great diversity of interests and perspectives (Dietz et al. 2003). Value pluralism shapes forest management (Berninger et al. 2010) and determines the social acceptability and further implementation of forest plans (Rodriguez-Piñeros et al. 2012). Hence, understanding forest owners' perceptions toward building facilities inside the forest will help to inform policy makers to avoid implementing undesirable infrastructure that may cause conflict among stakeholders and thus hindering progress toward sustainability.

The purpose of this study was twofold: first, to examine perceptions of small forest owners to build infrastructure in their forest as part of their community-based ecotourism project, and second, to explore the underlying reasons behind forest owners' decision to retain the forest for ecotourism. Accordingly, we developed two hypotheses: first, forest owners have contrasting perspectives about the construction of infrastructure in the forest for their ecotourism project. Second, ecotourism is perceived a long-term economic activity that will substitute farming.

Q methodology serves as a tool to identify diversity of opinions and areas of agreement and disagreement anticipating the bottom-up approach in communal decision making.

Forest management, ecotourism, and development

Sustainable forest management as a strategy to reduce poverty and conserve the forest can be defined as an array of actions with which people rationally use the forest to perpetuate its availability to provide an array of services. Among these services are enjoyment and recreation, which in several cases have capitalized on ecotourism projects demonstrating that well-organized rural poor communities know how to use resources sustainably, while obtaining

economic, social, and ecological benefits (Wunder 2000). Studies have shown that ecotourism can provide a competitive income return compared with timber production and forest clearing for agriculture (Stem et al. 2003; Broadbent et al. 2012).

Despite the contributions of ecotourism to the sustainability of the forest and economic development, some drawbacks have been reported. Brandon and Margoluis (1996) argued that there is a misconception on the expectations from ecotourism; while ecotourism seems to be the panacea for conservation and poverty alleviation, conservation and economic development are not always compatible. Accordingly, Barbosa-Polanco et al. (2010) discussed the inability of ecotourism to keep a steady cash flow over the long run, thus failure to obtain economic incentives would encourage rural poor to revert to destructive practices. These arguments seem plausible if ecotourism projects are conceived only from the economic-oriented point of view.

Conversely, it has also been reported that poverty is not always the major cause of environmental degradation, and that by keeping this reference may lead to negative environmental impacts (Swinton and Quiroz 2003). The association of forest health with community pride, personal health, and social cohesion has been reported as motivators for resources conservation, shifting economic benefits to a lesser level of importance (Stem et al. 2003; Rodriguez-Piñeros and Lewis 2013). Thus, perceiving ecotourism as a neoliberal strategy and blaming the poor for forest degradation, it is perhaps an incomplete part of the argument (Ravnborg 2003; Münster and Münster 2012).

Conceptualizing ecotourism as a holistic activity that complements other economic activities and supports social cooperation, cultural pride, women participation, conservation, and tourist's education seems to be a more realistic opportunity to attain sustainability. Among the several characteristics needed to keep a private forest attractive for tourists, Font and Tribe (2000) also mentioned infrastructure and its maintenance, amenities and services, and access to religious or cultural sites. The extent to which these facilities are required can vary from forest to forest (Lee et al. 2010). Large facilities such as restaurants, cabins, parking space, and visitor centers do not necessarily have to be built inside the forest; while the most commonly used facilities needed in the forest are walking routes, signage, resting areas, and camping areas.

Although most agree that the presence of these facilities would attract visitors and potentially increases visitation and thus creates additional income for forest owners (Batta 2006), building infrastructure inside the forest is of particular importance for small-scale forest owners who continuously face the lack of available cash and training on how to run an ecotourism business; it could be also a

sensitive topic for communities who have strong spiritual connection with the forest (Rodríguez-Piñeros et al. 2012). Exploring forest owners' perceptions to build facilities inside the forest is essential to inform policy makers and facilitators who formulate strategies to develop the nature-based tourism in small communities in Mexico through the Sustainable Tourism Program.

This study contributes to the literature on forest management for ecotourism by addressing perceptions of communal forest owners to build facilities inside the forest as a way to attract visitors, and thus increase economic benefits. It also explores forest owners' underlying reasons to decide to pursue ecotourism projects.

MATERIALS AND METHODS

Case description

The village of La Preciosita Sangre de Cristo in Puebla, Mexico is a community who shares an *ejido*, a piece of land that was assigned from the government by Law. Its population revolves around 890 inhabitants with a large population of women, children, and elderly because of constant migration of young adults.¹ The economy of La Preciosita is based on subsistence farming; the role of men is concentrated around farming, conservation of the forest (Fig. 1), and administration. The role of women is focused on school (cooking, cleaning, and assisting) and as promoters of development projects. Decision-making processes pertain to men thus, the voice of women is silent; however, women's active participation in developing projects has been a milestone in the last years.

The community of La Preciosita is classified as the least developed area of the region, but it is characterized for its cultural richness, which relies on the conservation of the forest and regional traditions. In 1972, one hundred members of the community purchased a forest land of 416 hectares.² In early 1980s, principal forest owners involved their male children as shareholders or secondary owners; therefore, the final legal document for the property contains 157 owners. Traditionally, the forest is administered by a male committee (known as reserve's committee) elected every 3 years by all forest owners.

The forest of La Preciosita (or the reserve as it is known by the community) is an uneven-age stand of pines–oak, home to more than 40 species of fauna, 5 species of pines,

7 species of broad-leaf trees, and more than 20 species of herbaceous plants. In 2009, forest owners unanimously approved a forest management plan for tourism that aims to enhance both, the heterogeneity of the stand structure and the composition of the forest. This plan accounts for forest owners' perceptions on forest management and criteria and indicators of sustainable forest management (Rodríguez-Piñeros et al. 2012). Upon approval of the plan, the community has undertaken some activities to develop a comprehensive community-based ecotourism project in which the forest is used as a main attraction for tourists, while families in the community offer traditional local food, places to stay, artisanal handicraft, and pre-Hispanic sauna among other services. To accomplish this goal, some women of the community have organized a committee to host visitors in their houses and to offer services to tourists. Since 2010–2014, the Universidad Popular Autónoma del Estado Puebla has coordinated approximately 518 international and national visitors. There are some other visitors from US and nearby Mexican States who have visited the reserve during the past 5 years as well.

This study is a 5-year follow-up after forest planning (2007–2013), researchers wanted to investigate perceptions of forest owners to build infrastructure in their forest, such as the construction of recreational forest trails, interpretational signs to appreciate trees and fauna, a scenic overlook, camping areas, and other recreational amenities to attract visitors. In addition, authors explored how forest owners perceive ecotourism in terms of its contribution to economic and social benefits.

Methodology

Q methodology, a technique used to reveal subjective views, was used to explore forest owners' perceptions to benefit the forest for ecotourism. Q methodology encompasses both a well-founded theoretical framework and a systematic procedure in the study of human behavior (Brown 1980). It is designed to analyze the social internal psychology of people composed of beliefs, motivations, values, attitudes, and opinions that people develop and interrelate to create their own points of view and made their own decisions (De Hegedus and Vassallo 2005). The underlying assumption of the methodology is that subjectivity is assumed to be communicable and operant. In other words, the subjectivity of individuals is self-reflexive; individuals are aware of their beliefs and motivations and can communicate them in a discourse. Q methodology serves well to assess forest owners' perceptions and motivations to keep the forest for ecotourism. In the context of ecotourism, there is an increasing demand on the

¹ According to 2006 statistics, 32 % of the population of the village, in particularly young adults, migrated to the United States.

² This forest land is separated from the land (*ejido*) that the government granted to farmers, which is called "tierra ejidal or *ejido*."

Fig. 1 Forest Reserve La Preciosita Sangre de Cristo. Forest owner keeper. Photo by Sandra Rodríguez-Piñeros

use of Q methodology to outdoor recreational research to identify perspectives of residents toward tourism in natural areas (Hunter 2013) and visitors' experiences in natural places (Fairweather and Swaffield 2002).

The application of Q methodology begins with the selection of the *concourse*, which is a list of all expressions of perspectives on a topic (Webler et al. 2009). A *concourse* can be built in different ways: by interviewing people, collecting commentaries from newspapers, talk shows and previous studies or essays among others (McKeown and Thomas 1988). Then, a list of statements is drawn from the *concourse* to construct the Q sample which is a set of specific yet comprehensive comments, beliefs, understandings, or meanings of a topic within a population (Previte et al. 2007).

The technique for data collection is called Q sort, it is a systematic rank ordering of people's points of view in a quasi-normal distribution panel (Van Exel and de Graaf 2005). The researcher presents to each participant with the Q sample and describes to the participant a condition of

instruction within which the statements are to be ranked. Q sorts are factorized with PQMethod[®] software resulting in factors that reveal patterns of beliefs among the participants.

In Q studies, the selection of statements is of major importance, statements which are the "subjects" should reflect the diversity of opinions within the population. A good set of statements could range from 32 to 40 statements and usually the number of statements is larger than the number of participants (Webler et al. 2009). In Q methodology, participants have the status of variables (Vugteveen et al. 2010); therefore, only few and purposefully selected people from the population, with different and well-formed opinions about the topic are required for the sorting to obtain a breadth of opinions (Brown 1986). Factors are related to people's views, thus, people with similar views will share the same factor. Brown (1980) and McKeown and Thomas (1988) present an extensive explanation of the methodology and its applicability.

For the purpose of this study, the population consisted of principal and secondary owners and their immediate

Table 1 Participants' demographics

Demographics	Number of participants
Gender	
Male	7
Female	7
Activity	
Member of reserve's committee	3
Male farmers	4
Women on ecotourism	3
Women other activities	4
Age	
40–45	3
46–50	3
51–55	3
56–60	4
>60	1
Education	
Non-educated	2
Uncompleted elementary	4
Elementary	6
Secondary	2

All males are primary or secondary forest owners, while women are immediately family members

families,³ all of them are referred to as forest owners or participants. The concourse of communication was built with semi-structured interviews to members of the reserve committee (6) and to all the women (8) who are members of the ecotourism group. Interviews provided information on the current condition of forest management, future expectations for the ecotourism, and what tourists have said about the reserve. Other sources external to the study such as standardize instruments and previous studies in the topic (Stem et al. 2003; Hunter 2013; Rodriguez-Piñeros et al. 2012; Yanza 2012) were used to build the concourse. Using content analysis, 32 statements were drawn from the concourse to construct the Q sample. Topics such as, tourists want hammocks in the forest, we need to befit the forest for ecotourism, people want to watch the birds, taking care of the forest, ecotourism provides jobs, and we expect more tourists in the future were frequently stated in the interviews; other statements associated to social and economic issues came from the other sources. Those 32 statements represented the universe of ideas and opinions covering

three major topics, perceptions about building facilities inside the forest, perceptions about community participation, and perceptions about the future of the ecotourism project.

From the population, 14 forest owners were purposely selected to account for all differences in opinions (Table 1). Participants sorted the statements (Fig. 2) in a pre-formatted, nine-column quasi-normal distribution array (Q sort) from “like me” on the right through “indifferent/ambivalent” in the middle to “unlike me” on the left. The condition of instruction that guided the sorting exercise was “*How do you identify with the following statements?*” The placements of statements in the Q sort were scored +4 (very much “like my view”) to −4 (very much “unlike my view” or “the lesser importance”). After sorting, participants were asked to explain why they organized the sorts in the way they did; capturing this information was important for better explanation of the results.

RESULTS

The scores of the 14 Q sorts were entered into the PQMethod 2.11 (2012) factor analysis program. Eight principal component factors were initially extracted; Varimax rotation was used, resulting in three factors that explained 56 % of the variance (Table 2); factors' correlations were less than 0.37 which indicate strong differences in opinions among the factors. For the purpose of this study, these three factors' solution is of interest considering that the population is a small and homogenous community. Using a significance level of $\alpha = 0.01$, factor loadings in excess of 0.46 ($2.58/\sqrt{N}$ where $N =$ number of statements) were defined as significant. Out of the 14 sorts, 13 were significantly loaded on one and only one factor (known as pure sorts), and one sort did not load significantly in any factor (Table 2).

The interpretation of the data is based on the Z-scores of the statements. The Z-scores are calculated as the normalized weighted average statements' score of respondents that defined the factor (Van Exel and de Graaf 2005). Each factor is defined by a unique set of statements that articulate the meaning of the commonly held perspective captured by participants who significantly load in that factor. A descriptive name was assigned to each factor which is usually associated to what the statements can say about the factor. Table 3 shows the Z-scores for each statement in each factor. Distinguishing statements in each factor are those for which the participants assigned a significantly different rank, and consensus statements are those that can't be distinguished among any of the factors. Distinguishing and consensus statements help to highlight differences and similarities among factors. A high-positive

³ Due to migration of some of the principal and secondary owners, it was necessary to include immediately family members who are empowered by forest owners to participate in meetings and projects, while they are away.

Fig. 2 Lady from the community sorting the statements. Photo by Sandra Rodríguez-Piñeros

score indicates strong agreement to the statement; conversely, a high negative score indicates strong disagreement to the statement.

Consensus statements for the three factors (Table 3) show forest owners' commitment to protect the forest health to pursue the ecotourism project. However, they have a negative preference to use their *ejido's* land (agricultural land) for other uses, and to invest more time to ecotourism. This implies that forest owners do not conceive shifting their major activities from farming to ecotourism. The interpretation of the factors clarifies why forest owners do not perceive ecotourism as an activity that will supersede farming.

Factor I: ecotourism as an opportunity for women to be involved in community development

Five participants, three women and two men, loaded significantly in it. Distinguishing statements 19 and 16 indicates that respondents perceive the ecotourism as an opportunity for women to obtain some income, since more tourists are visiting the reserve and more will come (statement 15). They foresee the ecotourism project to be

Table 2 Factors loading. X means sort defining each factor

Sort	Factor I	Factor II	Factor III
Prop1	0.0022	0.7237X	−0.0178
Prop2	0.3501	0.6502X	0.0720
Prop3	0.0015	0.7200X	0.1107
Prop4	0.2387	−0.1788	0.7099X
Prop5	0.4803X	0.2356	−0.1895
Prop6	0.2107	0.4094	0.6647X
Prop7	0.3845	0.5285X	0.3236
Prop8	0.3240	0.0050	0.7217X
Prop9	0.3709	0.1953	0.0545
Prop10	0.5915X	0.2774	0.2193
Prop11	0.7452X	−0.1636	0.1840
Prop12	−0.7352X	0.4311	−0.1764
Prop13	−0.2327	0.2764	0.7263X
Prop14	0.7373X	0.2855	0.2788
Expl. Var.	21 %	18 %	17 %

successful with more fellowship for which the community is willing to work (statements 30 and 32). Consistently, respondents would like the ecotourism to be a source of

Table 3 Z-scores for each factor

No.	Statements	Factor I	Factor II	Factor III
1	I agree with the decision to manage the reserve for ecotourism	0.777	−0.433*	0.773
2	The priority is to preserve the reserve for the ecotourism project	0.609	0.255	0.796
3	The reserve needs more thinning and cleaning to look better	0.859	0.255	0.29
4	I want the ecotourism to be a source of income to me and the community in the future	1.033	−0.487	0.259
5	I rather work on ecotourism than in agriculture	−0.503	−0.618	−0.327
6	Agriculture is not profitable	0.002	−0.961	−0.307
7	I think that agriculture activities are physically hard	−2.307*	−1.448*	0.466*
8	With the income I will obtain from ecotourism I would buy food and I do not have to cultivate my land	−1.13	−0.763	−0.093
9	I am thinking to work my “ejido” in other activities different from agriculture	−1.103	−1.005	−0.804
10	I am trained for agriculture not ecotourism	−0.924	−0.285	−1.569
11	I am trained for ecotourism not agriculture	−1.671*	−0.86	−0.848
12	Ecotourism is a way to preserve the forest	0.369	0.817	1.21
13	I want to obtain training to manage the reserve	−0.335	0.971	−0.058
14	I would spend most of my time in the ecotourism project	−0.705	−0.907	−0.469
15	I am sure there will be enough visitors for an ecotourism project	1.126	−0.584*	0.694
16	I believe many people are visiting the reserve and they like it	0.587*	−0.535	−0.458
17	The ecotourism project would enhance the image of La Preciosita	0.437	−0.342	0.589
18	I think ecotourism is a way to preserve our culture	−0.173	−1.734*	0.136
19	I think that ecotourism is a way for women to obtain some income	1.658*	−0.245	−0.942
20	I believe the number of visitors should be quoted by month to avoid the reserve to be damaged	−0.412	−0.917	−1.773
21	I would like the reserve to have signs for visitors to recognize the trees and animals of the reserve	−0.349	0.332	2.143*

Table 3 continued

No.	Statements	Factor I	Factor II	Factor III
22	I want the reserve to have some interpretation walking trails	0.858	1.297	−0.217*
23	I would like the reserve to have a specific area for tourist to camping	0.814	0.772	−0.125*
24	I want the reserve to have a scenic overlook	−0.102*	1.922*	0.854*
25	I would like the reserve to have some hammocks and swings for tourists to enjoy	1.036	1.102	2.114*
26	I believe that only the forest owner should have access to the places with altars in the reserve	−1.893*	0.675*	−1.062*
27	Ecotourism will provide enough jobs so I do not have to farm anymore	−1.04	−0.1*	−1.176
28	I do not go to the reserve but I would like tourists to lodge in my house	−0.245*	1.448*	−1.539*
29	I believe that some of the social problems are hindering the good management of the reserve	−0.47	1.872*	−0.215
30	I think that if the community gets more involvement, the ecotourism project would be a success	0.937*	1.821	1.81
31	I think that the reserve’s committee should include women	1.04	−0.638*	0.432
32	I believe people in the community are willing to work in ecotourism	1.222*	−0.675	−0.586

Bold indicates consensus statements (those that do not distinguish between any pair of factors)

* Distinguishing statements significant at $P < .01$

income in the future (statement 4) and would like women to be part of the reserve’s committee which by tradition has been ruled by men (statement 31). Positive ranks for statements 25, 22, 23, and 3 indicate forest owners’ desire to implement recreational facilities such as hammocks, interpretive walking trails, and camping areas along with some removal of damaged trees. Forest conservation is seen as important for these participants thus they recognize ecotourism as means to conservation (statement 2 and 12).

Negative scores on statements 5, 14, 27, and 9 indicate that this group of forest owners does not perceive ecotourism as a substitute for farming, since they consider that ecotourism will not provide enough jobs or enough income to sustain their families. In addition, they are neither trained to undertake ecotourism enterprises nor do they want to get trained. In

terms of implementing infrastructure, having a scenic overlook is not desired by this group of owners (statement 24).

In summary, forest owners who represent this factor perceive ecotourism as a project to include women, to obtain some extra income, and to conserve the forest; some infrastructure would be allowed as long as it does not heavily disturb the structure of the forest. Since they like to receive more tourists, they do not want to restrict the access to religious places.

Factor II: community integration will lead to conservation

This factor is defined by three men and one woman, who would like to have some infrastructure inside the forest including a scenic overlook, interpretation walking trails, swings, and areas for camping (statements 24, 22, 25 and 23). Access to religious places inside the forest is only allowed to owners (statement 26). Participants would also like the forest to look better for ecotourism which in turn is a way to preserve the forest (statements 2 and 12). Forest owners of this factor want to obtain training for ecotourism to be able to lodge tourists in their houses (statements 13 and 28) and because they believe that the ecotourism project will be successful with more participation. However, they elicit internal social problems as constraints to implement ecotourism (statement 29).

As opposed to forest owners in Factor I, this group of people does not believe in the involvement of women in the reserves' committee (negative score for statement 31). They neither recognize ecotourism as a source of income that supersedes agriculture nor as an opportunity for women to obtain extra income (statements 4, 6, 9, 19, and 27). Participants of this group do not believe that ecotourism is a way to preserve culture and social pride (statement 18).

Factor III: ecotourism to preserve cultural and social pride

Four participants (two women and two men) define this factor, they would allow some infrastructure in the forest such as interpretation signs (statement 21), a scene overlook (statement 14), and hammocks and swings for tourist to enjoy. Forest owners representing this factor think that in the future the reserve will have many visitors (statement 15), so they do not want to restrict areas to be visited and want to preserve the reserve (statements 20 and 1). This group of people believes that the conservation of the reserve is a priority (statement 2), sharing this perspective with forest owners in Factors I and II. However, they differ on the perception that the ecotourism not only would preserve the ecological condition of the forest, but it would

also serve as a means to preserve their culture identity and social pride (statements 12, 17, and 18).

Forest owners of this factor consider that women should be included in the reserve's committee; however, they do not perceive ecotourism as a way for women to obtain extra income. For this group, community is willing to participate in ecotourism, and as long as more people are involved the ecotourism project will be a success. These forest owners perceive the agriculture as profitable, and they do not believe that ecotourism will provide sufficient jobs to shift from agriculture, although they envision the ecotourism as an additional source of income. Training to manage the reserve is not a priority but it is still considered somehow important.

DISCUSSION

To increase the number of visitors to nature-based tourism in Mexico, Xola (2009) recommended building more facilities. However, the development of infrastructure inside private forest not only depends on the type of forest and visitors' preferences but also on forest owners' values. While it is important to guarantee visitors' satisfaction and education; it is also important to gauge the extent to which forest owners agree to build facilities and what kind of facilities they prefer. Forest owners disagree on the construction of a scenic lookout, walking trails, and areas for camping. The statement 24 (I want the reserve to have a scenic overlook) ranked significantly negative in Factor I; meanwhile it ranked significantly positive in Factors II and III. Statements 23 (I would like the reserve to have a specific area for tourist to camping) and 22 (I want the reserve to have some interpretation walking trails) ranked significantly negative in Factor III but they were ranked positive in factors I and II. Participants in all factors agree that the forest needs to be clean of unhealthy trees and weeds; they also agree to hang some hammocks and swings. Infrastructure that causes a major change in the forest structure is not totally desired.

Training on business administration is fundamental to implement nature-based tourism, taking for granted that local people are well organized and have abilities and capabilities to undertake such projects has been a flaw of donors and facilitators. More attention to training on resources management and administration is required to implement sustainable ecotourism enterprises. Although only participants of Factor II expressed their desire to get some training, tourists are visiting the forest every month demanding certain degree of community's organization. These results lead to accept the first hypothesis indicating that forest owners have different views toward the construction of infrastructure in the forest. Those views are

associated to the benefits they expect to obtain corroborating what McFarlane et al. (2011) observed.

There are several studies on the role of ecotourism and its contribution to increase rural income (Wunder 2000; Foucat 2002). Results of the study lead to reject our second hypothesis, forest owners do not perceive ecotourism as their primary source of income, which will eventually substitute farming. Forest owners understand that ecotourism is not a steady source of income but an opportunity for women to participate in the development of the community. Forest conservation represents community pride and an investment for future generations.

The role of woman in forest management and conservation deserves more attention; thus, efforts can be focused on specific groups. In addition, tourists' recreation can be addressed from the point of view of the local people respecting their relationship with nature which is associated to community values and desires. Therefore, a cultural value is a determinant that tourists need to acknowledge when visiting community-based tourism. Consequently, more research is required; a study on tourists' perception will provide more information on the contribution of forest to community development. The National Development Plan of Mexico 2013–2018 aims to promote women's participation through small business initiatives in rural areas. As a strategy to accomplish this goal, the National Plan considers to endorse alternative tourisms such as ecotourism, regional cultural tourism, healthy centered adventure, and non-traditional tourism.

The discussion on the inability of small poor communities to preserve nature if economic incentives are not provided to them is questioned in this study. In spite of poverty and lack of development of this small community, 416 hectares of forest were purchased and have been preserved for the past 43 years. Their forest stand has never been intensively harvested; rather forest owners want to avoid destructive practices such as the construction of infrastructure.

CONCLUSION

Although ecotourism has been reported as an alternative to generate profit, this study shows that there is a mix of views on how forest owners perceive income generation from ecotourism. Building some infrastructure inside the forest as a way to attract tourists is one of the phases of the community's ecotourism plan. Nevertheless, the extent of what activities to implement is dictated by peoples' cultural and historical relationship with the forest and their desire to keep the forest healthy to receive visitors.

This study also elicits that forest for ecotourism is not perceived as an activity that will substitute farming;

conversely, the forest is not going to be clear-cut for agriculture. It has been discussed that forest conservation can only be achieved if there is an economic incentive to farmers. However, this is not always a rule; forest conservation is also a function of other determinants in which social values play an important role. Understanding people's perceptions helps facilitators to recommend activities that are consistent with people's values and needs in terms of resources contribution to increase economic and social development.

The lack of planning for ecotourism in Latin America has caused negative impacts to the physical environment as well as culture. Recognizing peoples' needs (other than economic) and desires is of relevance for effective resources' stewardship; it contributes to inform policy makers and development agencies to implementing projects that are attractive and important to people, rather than imposing projects that will eventually be abandoned because of their lack of credibility among users (Dietz 2013).

Although this is a case study, it serves as guidance for other rural areas in Mexico where the demand for nature-based tourism is increasing. One limitation of this study is the inability to have an accurate population size, since it is a community of migrants. The lack of women's participation on decision making was another constraint, despite the contribution of some of the community's women, there is certainly more women in the community that would have been included in the study to make the number of participants even. Therefore, the study is exploratory and descriptive.

On the other hand, international and national development agencies have undertaken some efforts to help this community to overcome poverty; but they tend to implement projects based on their own agendas rather than on community's desires. This creates confusion to forest owners jeopardizing the implementation of the ecotourism project. Development agencies would make an enormous contribution if they take a moment to examine the future goal of the community in terms of their ecotourism project.

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