Tourism Sustainable and Natural Resource Management in the Community of San Pedro Atlapulco, Mexico

Nuchnudee Chaisatit, 
Tourism and Gastronomy School, 
University of Colima, Mexico. 
E-mail: muchnudee@ucol.mx

Virginia R. Martínez Hernández, 
Tourism and Gastronomy School, 
University of Colima, Mexico. 
E-mail: vrmh@uaemex.com

Abstract

San Pedro Atlapulco is a rural indigenous community located in the state of Mexico together with the Insurgente Miguel Hidalgo y Costilla national park. By the time, the population had worked principally as peasants and sold natural resources, but unfortunately the community has never received any support from the government sector. Nowadays, the principal economy is based on tourism because of the availability proximity of conifer wood which makes a suitable environment in the valleys for people who manages tourist activities such as horse riding, All Terrain Vehicle (ATV) riding, hiking, Picnicking, etc. There is some effect necessary to be evaluated in order to preserve and take advantage for eco-tourism and the need to research the opportunities for its sustainable use and adequate management. The main objective of this investigation is to evaluate the sustainability of the recreative tourism activity through social indicators and the possibility of incorporating this resource to the tourism activity with the aim of proposing an eco-tourism alternative for the community of San Pedro Atlapulco, State of Mexico which would allow strengthening of the tourism product and consequently would present opportunities for the improvement of the quality of life for the residents. The methodology of the current study was modeled to evaluate the Management of the Natural Resources System Incorporating Indicators for Sustainability (MESMIS), this consists of integrating experiences and recommendations of different institutions, which have been working on the development of methodologies to evaluate the sustainability management of natural resources.

Key Words: Recreative activity, Wood, Sustainable development, San Pedro Atlapulco
1. Introduction

The neoliberalism as an economic doctrine has generated many economic and social problems, created by the lack of productive opportunities for the rural and urban populations, due to the globalization process same that is quickly expanding in countries all over the world. The neoliberalism is polarizing societies in its eagerness to integrate them to the international economy. With the thinning of the state the possibilities of equal growth and satisfaction of social needs have been drastically reduced. Farmers are currently the most affected because they do not have the possibilities to join the new economic model, the export agriculture. In this sense people is forced to emigrate accepting jobs in very unforgiving circumstances, or they’re forced to look for other surviving options like craftsmanship or in other cases incorporate natural and cultural resources to the tourism. Due to the abandonment of the government support farming communities returned to their old ways of participation to generate better profits. Currently several communities are making efforts to join other activities like tourism.

The tourism is an important alternative for rural communities, because in the past years the support politics for the farmers have been scarce and that let them without choice but to take advantage of its natural and cultural resources to push their own development, through the offering of recreational tourism to improve their earnings.

This is what happened in San Pedro Atlapulco a rural community of indigenous origins that previously engaged in agriculture: harvesting wheat, oat and corn and the sale of natural resources such as wood and charcoal.

2. Literature Review

2.1 Sustainable Tourism Development

Today, tourism is presented as a complex system related to a process of steady transformation, either of its users activities, tourists, as suppliers of services, which rose less than half a century of real nature as a scenic goals essential the virtual nature or technologically achieved. Tourism is an option to boost development in countries, regions and underdeveloped communities through sustainable programs that drive today governmental and non-governmental organizations worldwide. That is, it is thought that developing countries can develop a relatively stable, thanks to the tourism economy.

The situation is entirely faced in countries of low development, as tourism has been incorporated into rural regions pretending improve their economies by boosting alternative development models, with no positive results for communities who are looted and exclusion the advantages of tourism as shown by the work of Daltabuit. In countries in way of development and rural communities they are managing tourism as a strategy to develop their economies and improve the quality of life for residents.
According to the 1987 Brundtland report, sustainable development policy is limited. At the UN Conference on Environment and Development, known more as the "Earth Summit" and credited in Rio de Janeiro in 1992, it was further agreed to the concept of sustainable development and explained in Agenda 21 adopted by The conference. Since then, national governments have adopted sustainability as a fundamental development policy. The World Tourism Organization (OMT) has adopted the sustainable approach to tourism and defined sustainable development as "sustainable development meets the needs of present tourists and host regions while protecting and promoting opportunities for the future. It is conceived as a way to manage all resources so that they can meet the economic, social and aesthetic needs while respecting cultural integrity, essential ecological processes, biological diversity and the systems that sustain life "(OMT; 1999: 22)

According Masri de Achar et al. (1997: 17) define sustainable tourism development as "Sustainable tourism can be seen as meeting the needs of tourists and host regions today, while protecting and enhancing opportunities for the future" that is sustainable tourism development It determined by properly manage all resources and ecosystems to meet the socio-economic needs for the long term.

The principles of sustainable tourism for Masri de Achar et al. (1997: 17) are:

- To provide experiences of the highest quality to tourists, as the current needs of visitors are increasingly demanding and require personalized treatment optimal attraction highly qualified services in an environment they can combine and.

- To promote the development of natural and cultural richness of each region and the attractions caring and identity, so that they can contribute to the national heritage, and at the same time remain a tourist enclave.

- To disseminate the advantages and opportunities that tourism brings to the economy and the environment, and that with good management of this, one can see significant revenue, which would be of great help to maintain and improve the prosperity of the country, applying them also the conservation of natural resources.

- Improving the standard of living of host communities, creating jobs and growth opportunities to the population and contributing to the development of parallel services that they can combine to provide better service to tourists.

This allows both urban and rural communities realize all the benefits they receive, and allows cultural interaction between tourists and natives of the place, maintains the preservation of the environment and the proper use of natural resources.
2.2 The Community of San Pedro Atlapulco, State of Mexico

The studied zone is located in the community of San Pedro Atlapulco that belongs to a section linked to the Toluca valley in which the basins and mountain system belong to a region known as the central highlands of Mexico.

The community of San Pedro Atlapulco is part of the municipality of Ocoyoacac Mexico State. The territory of the community is located between the limits of the Miguel Hidalgo national park and Acazulco; just 10 KM from the Marquesa-Chalma highway, Atlapulco communicates with Capulhuac and Santiago de Tianguistengo.

Two kinds of property exist in San Pedro Atlapulco: communal and private. The presidential resolution confirmed in definitive way Atlapulco’s communal goods giving it a definite extension of 7,110 hectares, communal property is formed by three polygons: the first one of 6,271 hectares that corresponds to Atlapulco; the second one of 654 hectares called San Miguel Amaya; and the third one of 184 hectares is Santa Maria Coaxusco. Although they’re three different polygons, the legal representation falls in the hands of the commissioner of community property of San Pedro Atlapulco.

The polygon that corresponds to Atlapulco it is divided in four zones: forest, touristic, agriculture and urban. 6,915 hectares belong to the forest zone with forests of pine trees, firs and oak a small part belongs to the agriculture zone. The fauna is abundant there’s squirrels, rabbits, birds, reptiles and possums. Its water supply is abundant because it has several creeks that come from the high parts of the community: the hills surrounding the community.

2.3 Physical and Biological Characteristics of the Ecosystem of San Pedro Atlapulco

San Pedro Atlapulco is considered the third highest locality in Mexico, situated above 3,010 meters over the sea level, situation that allows it to provide an admirable sight of the Toluca Valley framed by the Xinatécatl volcano and the growing urbanization and industrialization of the city of Toluca, that everyday fuses itself with the ancient farmer towns of the region. The zone has low temperatures and a relatively more uniform humidity than the neighboring basin of Mexico. Modern weather maps based on the Koppen classification, put the Toluca Valley as C(w2)w1 at the lower parts or sub-humid temperate with summer rains, but in the mountain zone of the Marquesa region is defined as c(E)(w2)w2 which is equivalent to sub-humid semi-freddo with summer rains. The average yearly temperature ranges from 10 to 12 degrees Celsius and the average rain is 900 millimeters per year.

The climatic disposition shows a great uniformity under the 2800 meters over the sea level where the temperature ranges from 12 to 14 degrees Celsius, being the eastern part slightly colder. The community is slightly over the 2,800 meters over the sea level that’s why the temperature descends two degrees Celsius.

The conifers forest of the community provides and replenishes the groundwater. There is springs that supply the municipalities of Huixquilucan y Lerma and D.F. They’re not part of
Lerma’s water basin but they supply the municipality with drinking water. The community has a usufruct agreement on water and the forest. Because this forest is located in the middle of Toluca, D.F. and Lerma it absorbs the pollution of these cities that’s why they look defoliated in comparison with the forest in the south part of the community. Those are the greenest and flowery woods but also the more isolated from the population. It’s one of the forests with problems caused by the urban growth and modernization, and is noticeably by the lack of natural regeneration.

2.4 The Organization in San Pedro Atlapulco

There is a representation through the commission of community property in the same agricultural regime, that’s formed by a president, a secretary and a treasurer. There is also a counsel of vigilance also called agricultural core that takes care of the forest and all the materials and resources on it.

In relation with the commoners that work inside the touristic valleys, these have to fulfill certain requirements. To be able to utilize the forest ecosystem its required to be originative of the community, request a written permit to the commission of community property, in which you note your request, that is regularly obtained through a permit of wood utilization, which will be used to elaborate beams, planks or other things, and the main advantage is that the given permit is free.

The population assures that the forest has an indirect importance in their life, because people do not depend on the use of this resource because the population has other jobs that had allowed them to improve their living standards in past years.

Because of the abundance of the forest the community has a really nice environment; it is recognized as a really important lure for the tourism, because nowadays the big cities does not have many recreational spots for their population, that is how the valleys of San Pedro Atlapulco cover the need of recreation for the large metropolitan zones, like Mexico city and Toluca. At the same time the commoners had been benefited by the great demand of their valleys and services they offer, that is how the tourism is now the main activity, job generator for the community and the main source of support for the families that belong to San Pedro Atlapulco.

2.5 The Recreational Touristic Activity in the Tourist Valleys

Since the 40’s the population started to participate in the tourism creating routes for hikers that arrive to the Miguel Hidalgo Y Costilla National Park better known as la marquesa, the profit were low due to the lack of visitors, it was until the 70’s with the opening of the highway la marquesa-chelma that connects to tenango del valle that the recreational zone of la marquesa extends to the valleys of Atlapulco. That’s how the valleys organization emerged so that all the population from the community had the opportunity to participate in tourism as long as they were from the community.
Up until now there are 8 valleys were the touristic activities are developing: Valle Del Potrero, Conejo, Zarco, Carbonera, Cielito Del Angel, Rancho Viejo, Silencio and Las Monjas. The activities that are currently offering for the tourists in the valleys are: rental of ATV’S, horseback riding, rowing on the lake, outdoors games area, recreation areas, food sale, and picnics.

3. Method

Currently the economy revolves around the practice of tourism for its closeness to the coniferous forest that provides a pleasant environment. This community is integrated by seven valleys: valle del conejo, porterto, Rancho Viejo, Silencio, Cerrito del Angel, Las monjas y Las Carboneras; of which only the first four have touristic activities.

This community doesn’t have lands that provide support that’s why they’ve seen in recreational tourism a profit opportunity, that’s planned by a community organization that determines the way the natural resources are used such as woods, land, and mainly water.

The community of San Pedro Atlapulco has a vast woods richness mainly of pine trees and fir. However they are not used in a proper way by its population, limiting their use of woods and taking advantage of the valleys for the development of recreational touristic activities. The touristic services offered at the valleys are rent of ATV’s, horseback riding, food and drinks, sale of crafts and toys among others, this activities generated deforestation, woods fires and the soil erosion; in a way that constitutes factors that affect the environment and the woods of the community.

It is considered that the sustainable development is the alternative mean to support the natural resources, specially woods that are the main resource of the community, from this approach solutions are provided to solve the environment problems of the forest.

From the perspective of sustainable development arises the study of tourism, considering the postulates of the World Tourism Organization (UNWTO) that points out that not just the needs of current tourists and receiving regions should be met but also has to protect and foment future activities. Considering tourism as a mean for development through manage of resources in a way that satisfies the economic and social needs respecting the cultural integrity of essential ecologic processes, ecologic diversity and the systems that support life.

The research was developed with the methodological proposal of the framework for the evaluation of natural resource management systems, incorporating the sustainability indicators from economic and social environmental indicators.

The life of the people from San Pedro Atlapulco have been related with the forest since pre-hispanic times, because from them water, fresh air, wood, mushrooms and medicinal plants are obtained.
In pre-hispanic times the forest were not commercially used but used for self-consumption with the hunt of animals like the wild chicken, rabbits, among others and the use of medicinal plants like the carricillo, pata de leon, lengua de vaca, gordolobo, flor de ocote among others. They also used the wood to build cabins.

Since colonial times San Pedro Atlapulco has delivered charcoal as a tribute to the Mint during the 1700-1900. Charcoal was the main fuel of the time and was sent to Mexico City. They also produced Pulque, crafts made with still life and wild seeds for its sale in local markets.

From the year 1900 the population started to protect the forest and reduce the over use of natural resources like wood or charcoal of dry trees that were sold in close communities, without putting aside the agricultural activities that always accompanied the development of indigenous towns in Mexico. The valleys of San Pedro Atlapulco where the touristic activity is taking place today, used to be meadows for grazing of animals and croplands; harvesting wheat, beans and oat.

The tourism attractiveness of this region lays essentially on its natural resources. The preservation of its forest has motivated the arrival of visitors to take part in outdoors recreational activities such as sports, horseback riding, camping, hiking and family time.

The touristic valleys are very popular especially on weekends and festivities to rest, breath fresh air and to do outdoors activities. This zone offers its services to visitors from big cities mainly.

By the above it’s important to evaluate the activities that the community does in function of its natural resources, arising questionings such as: is the way the forest is used in San Pedro Atlapulco sustainable? What´s the role of the community in making sure that the activities taking place in the forest are sustainable? What ecotourism options could be implemented in the community?

According to the model to evaluate the Management of the Natural Resources System Incorporating Indicators for Sustainability (MESMIS), the sustainability of a natural resources handling system, can be only evaluated in a comparative way, comparing it with another system. In this case it was decided to do a comparison between the time of the handling system before and after doing the touristic activities.

Described below are the general characteristics of both handling systems before the touristic activity in the valleys? In the other hand following the MESMIS methodology an analysis was proposed based on five general attributes of the sustainability, productivity, equity, stability, resilience, adaptability, and self-management. For this it was necessary to identify critical points and attributes of sustainability.

To evaluate the environmental impact of tourism and recreational activity on the community of San Pedro Atlapulco’s forest, the main critical points relate to the determinants of the water
resources, soil, forestry and community organization before and after the presence of tourism, when the villagers began to deforest and open valleys to tourism the environmental issues began.

The importance of the community forest can be classified by:

3.1 Social Context

MESMIS’s methodology, the community of San Pedro Atlapulco is a community that has high self-reliance for its form of organization and participation as communal. Although the community belongs to the municipality of Ocoyoacac but the community has the Supervisory Board of Communal Property for permission to authorize and finally with the Commissariat of Communal Goods.

The rule of the community on the use of the community forest, you have to ask permission for the processing of the Supervisory Board of Communal Goods as tourism in the valley. The trees are felled allow sick or old trees that no longer good for the forest. The community of San Pedro Atlapulco won the award for the reforestation of the state government of Mexico.

Reforestation is required within the community. Each family must participate reforestation each week, if a family does not comply will not be able to work a weekend in the valleys.

3.2 Economic Context

As I mentioned, for the abundance of forest that attracts tourists from metropolitan areas to come to visit tourist valleys and tourist activities is shifting agriculture today is only for home consumption.

The community began to develop tourism from thirty years old when the Mexico-Toluca highway opened. People from nearby towns and metropolitan area who came to buy natural resources such as firewood and charcoal rented horses to climb the Monte Alto and the villagers realized that this activity is an alternative to improve their quality of life and began to make tourism activities in Potrero Valley to date are the seven valleys mentioned.

For the frequency of reforestation, forest community is very healthy and density but not exploit the community for not having confidence if the forest is going to end. In 1996 the forest management program started by the Ministry of Environment and Natural Resources and Fisheries (SERMARNAP) Resources. As I mentioned that the main objective of the program is to exploit the forest resources for commercial and forest dynamics. But people do not want to exploit although activity can improve the condition of life of the populations.

3.3 Environmental Context

In the community of San Pedro Atlapulco wealth nature has not only the forest of conifers (pine, fir, pine sticks) but also the Hydrological resource which is interrelated with the forest.

What's methodology MESMIS by indicator environmental degradation of tourist activities is the environmental effects such as erosion and soil compaction that will have consequences for the forest degradation because the edaphic community resource is transverse volcanic
system that is very fragile and easily lost to water and wind. The forest helps keep the soil from erosion.

4. Evaluation of the Sustainability

4.1 Productivity

For the attribute of productivity the indicators that were selected are yield of the wooded area and profitability. The yield, in other words, the growth rate of forest reforestation, is hard to measure, but an estimate is made from the information of the Government of State of Mexico’s forest use program. The profitability was calculated using a cost-benefit analysis to consider the total economic value of the tourism activity being undertaken, in other words what is the monetary, nonmonetary or environmental benefit that are result of the maintenance and use of forest resource.

Table 1: Management System Compared before and after Tourism

<table>
<thead>
<tr>
<th>System determinants</th>
<th>Before Tourism (prevailing to 1996)</th>
<th>After tourism (Since 1966)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original biofics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resource characteristics</td>
<td>Conifer forest, pine, fir</td>
<td>Conifer forest, pine, fir, oak</td>
</tr>
<tr>
<td>Forest harvesting</td>
<td>No</td>
<td>Use dead trees for firewood, limited exploitation 15,000 m³ per year (started in 2005)</td>
</tr>
<tr>
<td>Conservation practices</td>
<td>No</td>
<td>Forest management plan Reclamation program</td>
</tr>
<tr>
<td>Production target</td>
<td>Forest reserve general use</td>
<td>Forest and water reserve commercial exploitation</td>
</tr>
<tr>
<td>Characteristics of the organization for the production</td>
<td>Regulation of forest use for commoners</td>
<td>Regulation of forest use for commoners</td>
</tr>
<tr>
<td>Benefits</td>
<td>No</td>
<td>The sale of timber and tourism</td>
</tr>
</tbody>
</table>

Regarding this attribute (productivity), we find that previously the main economy of the community of San Pedro Atlapulco was the agriculture, the condition of the forest was not as abundant now because the community members exploited the forest for personal consumption and sale of natural resources without measure, since 1996 when the Mexico-Toluca highway opened and tourism activity began in the tourism valleys they also started to replant and take care of their forests to attract tourists and get financial support from the government. As the forest, it does not pay off because there is no use of the wood, or the resin, its use is limited. What does pay off is the tourism valleys, and these are different because they depend on many aspects such as tourism service location, branch in which they work, season of the year and others. However, we can say that each week there are families that receive more than 5 thousand pesos and others don’t even reach a thousand pesos.
4.2 Equity

From the social point of view, it is very important to determine who benefits - and to what extent- with the monetary and nonmonetary products obtained from the forest and tourism. The diagnostic criteria that was selected was the distribution of benefits, and the indicators were: economic equity, income received by families and participation of the population in tourism. These three indicators were assessed through direct interviews.

In terms of equity, we can say that, it exists, because all Atlapulco born population has the right to exploit natural resources so everyone can work in tourism in the valleys of the community, if requested and are assigned their rights and are made aware of their obligations. Therefore, 80% of the economically active population is involved in tourism, so everyone benefits from the forest and valleys, either through the provision of a service or resource that it provides them with such as wood, firewood, water, clean air.

4.3 Stability

The stability of the forest of the community of San Pedro Atlapulco depends on the Forest Management Program, as well as the directives of the Tourism Valleys and, on the other hand, the social-political context as well as internal stability of community organization and the cooperation with the federal government for the reforestation program.

4.4 Resiliency

In the resilience’s case, it results particularly difficult to identify relevant indicators, because of the difficulties found in wooded areas, valleys, foothills and springs. The forest management program and analysis of soil and water quality were taken as indicators.

In terms of stability they indicate that the conditions for joining a tourist service is in relation to their investment opportunities, and they can do it because they can participate in different branches such as horse rentals, ATV’s, sale of food or candy, and the investment can range from 1,000.00 to 30,000.00 but the recovery of investment ranges from three months to a year depending on the branch and quality.

The stability of the management of the forest of the community of San Pedro Atlapulco depends on political, economic and social organization factors. The strategic indicators that were selected are: a) Degree of reforestation b) Extent of deforestation.

According to information from the forest management program, the data on the quantity of trees for reforestation in the year 2003 were a total of 2000 trees and in the year of 2004 3000 trees of pine and fir, the firs are those in the lowland and mountain foot and the pines are in the top because of the condition of climate, soil and light needs.

The reforestation program is held every year in the rainy season, the number of trees to reforest depends on the amount of rain and government support.

Regarding the degree of deforestation it’s difficult to measure, the residents take advantage of dead trees or those with disease, which they use as fuel in restaurants and homes. Each year
the community cuts down 15 000 m³ of good timber trees to sell to the nearby communities. On the other hand, there is prohibited logging that has not been able to be controlled.

The community of San Pedro Atlapulco’s forest has resilience, in other words it has the ability to recover, its high because of the volume of forest growth, even though it has difficulties because, as mentioned the farmers and fires cause the forest not regenerate, but the community is fixing these issues and seek the participation of 20 persons for the care of the forest. However, in the community there’s a conflict of the political nature of forest exploitation and for this reason the management program is suspended.

Regarding the resilience of the soil, according to study samples and analysis of the Autonomous University of Mexico State edaphic laboratory the soil system in this area is very fragile. In the tourism valleys there’s a problem of erosion and soil compaction. Worse it is only in the tourist areas because most of the soil of the community is unaffected. In the tourism valleys it’s important to set aside areas for conservation.

The water resource of the area is abundant because of the amount of forest and rain, there are more than 40 springs. According to the analysis of water in the hydrological laboratory of the autonomous university of the state of Mexico the water is of good quality, has low turbidity and fulfills with the Official Mexican norm NOM-127-SSA1-1994, "environmental health, water use and permissible limits for human consumption, quality and processes that must be applied for water purification.”

4.5 Self-management or Self-reliance

It is related to the ability of the commissioner of the community to take decisions regarding the management of forest resources and its tourist valleys. The selected diagnostic criteria was the level of organization of communal property management community. The indicators chosen to represent this attribute were the forms of organization, participation of community members and the frequency of meetings. To measure these indicators are formal and informal interviews and reviewed bibliographic and archival sources.

Self-management is given in the community through the way it is organized. Although San Pedro de Atlapulco is part of Ocoyoacac municipality, it is form of government is independent. Its organization is communal, all the actions and decisions are taken at the General Assembly with the participation of all community members, seniors born in the town. This form of organization is based on communal ownership of land, which has driven development "from below", where the community is who promotes their development through natural resource management to solve problems without participation in most cases of external agents. This practice is composed of important factors such as identity, ethnicity, religion, education, a common past of its inhabitants, and the decisions taken in popular form in terms of their needs. All this has allowed a certain independence from government authorities at municipal,
state or federal, where the rules and regulations governing the internal life are recognized and accepted by the inhabitants themselves.

5. Results

The results that have been found in relation to economic indicators on the cost benefit of the forest, is in its conservation to maintain clean air, good water and fuel. It is use is not because of timber cutting and sale, but in the use of the valleys for tourism purposes, so a proportion of its territory is intended for the community members’ exploitation of natural resources. The investment cost is low because they often provide other resources such as horses, or consume wood for their food establishments, as the purchase of materials is minimal, or the purchase of ATVs. That is why the community members participate in various economic activities according to their investment opportunities. The income received for work in tourism activities are diverse, depending on the days worked, the branch and the valley in which they participate, and the influx of tourism. So we find people who can have an income of 5,000 per week or others with a thousand pesos. It is undeniable that the use of the valleys for tourism has led to the creation of jobs, since 80% of the community has jobs in tourism and have income to meet their basic needs.

Recreational tourism activities that are underway are showing some effects to soil resources, water and forest in this area. Eco-tourism could be one alternative for the community of San Pedro Atlapulco to exploit its resources, mentioned above, thereby improving the economic status of populations and the environment care.

The problems that are displayed in Atlapulco in relation to natural forest resource management is that the inclusion of tourism in natural areas has been done in an empirical way according to individual needs of tourism, little or nothing has been advised of specialists to manage their resources.

The concentration of activities in two valleys is causing soil depletion and general deterioration of natural resources in a matter of productivity in these areas is higher, which is why the population prefers to participate in these valleys and not in others. It is important to assess the effects of load capacity of these valleys and propose the diversification of others.

Although there is a communal orientation based planning, it is not appropriate since it does not allow the resource to be conserved, regenerate and control the erosion, due to tourism and grazing animals, as well as runoff and winds. It is necessary to reconsider the planning and resource management to encourage, maintain and preserve the tourist in the place and maintain in good conservation the forest.
6. Conclusions

The San Pedro Atlapulco’s forest is an important resource for the community. The community members are taking advantage of forest, by tourism and the scenic beauty, clean air and proximity to Mexico City and the metropolitan area that attracts tourists.

The residents of San Pedro Atlapulco try to take care of their forest resources to maintain the water through the support provided by the state government of Mexico.

The recreational tourism activities being undertaken are not presented in a sustainable manner, even though it improved the economic situation of the people, the negative effects that are occurring in the long term have a greater impact in this area.

The soil of the tourism valleys are not suitable for some of the recreational activities that are taking place, however they have the opportunity to be exploited to carry out eco-touristic activities aimed primarily to take care of the environment and are of lower impact. In the analysis of the soil based on sustainability, the tourism valleys of the community have been damaged by activities such as horseback riding and ATV use; that cause the problem of compaction and erosion of the soil.

The natural characteristics of the community of San Pedro Atlapulco are suitable for the practice of ecotourism, but the villagers have not displayed for their benefit, since they only take advantage of the valleys for tourism and recreational activities in mass, leaving aside the presence of forest resources, currently untapped, it has not found a way to use it individually. However, the eco-tourist activity is an alternative that can result in local productive sectors in the community, proposing new activities through a community organization that could begin to plan for tourism in a collective manner, and on the other, preserving and exploiting the natural resources of forest.

The management of tourism in the community is promoting local development. The existence of natural resources like the forest that generates economic benefits for the people who handle it directly, and environmental benefits for the entire society. Such economic benefit is almost entirely in the communities, since there are no costs to be paid abroad.

From the evaluation of forest sustainability through MESMIS methodology is that the forest resource is not being exploited in a sustainable way because the villagers are not using it commercially, in other words, the residents do not use the forest properly because they prefer to maintain the existing hydrological cycle, without interfering in the conservation although it is the resource that brings a lot of revenue for the community. The forest also provides a pleasant environment which has allowed tourism to grow in the community and has provided the community members with new opportunities to improve their living conditions and the equipment within the community.
The community should assess the development of tourism in order to protect their natural resources from the negative effects and find some alternatives for sustainable momentum, based on ecotourism as an alternative for the preservation of the environment and improve the economy and quality of life for residents.

In this sense, the community must: establish strict conservation of nature to protect flora, fauna and the ecosystem, to determine the limits of absorptive capacity so that there isn't an excess growth of tourist installations on the environment, construction small-scale facilities in appropriate environmental sites, with local design style, using local materials, energy saving system and proper disposal of waste, create a visitor center with visual information about the site and appropriate conservation techniques, develop and disseminate codes of ecotourism to the behavior of tourists and operators, as well as monitoring compliance with these codes, train villagers as guides that provide tourists with accurate information on biodiversity and conservation techniques, and practice good conservation measures during tours.

The conservation of natural resources of the forest and valleys are made through community management. All residents of the community have opportunities to use their resources for their survival only that it is necessary to put consideration of the general assembly of villagers that regulates and authorizes the forms of use.

Tourism is playing an important role in the community among the community with the use of natural resources, economy and social organization. Since tourism is now the mainstream economy, the community is developing its environmental, social and economic. The villagers have jobs that help reduce migration of young people before they went to Mexico City to find work.

References


Daltabuit D.,Magali et al.(2000), Ecoturismo y Desarrollo Sustentable: Impacto en comunidades rurales en la selva Maya, coauts Cuernavaca: UNAM, CRIM.


Rivera Sánchez, Liliana: El discurso de la participación en las propuestas de desarrollo social en Sociedad Civil Vol. 7. Mexico DF.


