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The Sustainable Restoration and Development of Parque Landeta and the Presa de Las Colonias Wetland Through Effective Community Participation, San Miguel de Allende, Guanajuato, Mexico

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**The Sustainable Restoration and
Development of Parque Landeta and the
Presa de Las Colonias Wetland Through
Effective Community Participation
San Miguel de Allende, Guanajuato, Mexico**

**By
Tara Putney**

Committee

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A Professional Project Report Submitted in Partial Fulfillment of the Requirements for
the Degree of

Master of Water Resources
Policy/Management Concentration
Water Resources Program
The University of New Mexico
Albuquerque, New Mexico
May 2006

Committee Approval

The Master of Water Resources Professional Project Report of **Tara Putney**, entitled **The Sustainable Restoration and Development of Parque Landeta and the Presa de Las Colonias Wetland Through Effective Participation**, is approved by the committee:

Chair

Date

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Lastly, I could not have settled down long enough or worked so diligently on this paper if it were not for the love and support of my parents in Southern Oregon and my best friends that opened their homes and lives so that I may complete my Masters upon my return from Mexico. Most importantly I would like to acknowledge and thank Jeff who supported my research and all of my UNM endeavors over the years, and who was my partner and friend the whole time in Mexico when he probably had a million other things he could have been doing.

Abstract

Community participation in watershed management has been globally recognized as being one of the key elements in sustainable development. The appropriateness of adopted technologies, information transfers, socioeconomic and cultural sustainability, and monitoring and maintenance of water projects are all interconnected with the level of community participation. This professional project presents an analysis and recommendations for the sustainable development of a local park and its associated wetland resources through effective, relative and meaningful community involvement.

Parque Landeta is found just outside the urban zone of San Miguel de Allende, Guanajuato, which is located in the semi-arid Central Highlands of Mexico. Qualitative and quantitative data was collected through interviews with actively participating stakeholder organization board members and staff. In addition, a total of 109 residents, park visitors and local students were surveyed by volunteer high school students and qualified facilitators in order to evaluate the community dynamics, perceptions, needs, and participatory interests in the Parque Landeta project.

The results show that there exists an overall genuine interest in project participation and environmental education initiatives. However, there are socioeconomic and gender constraints that may deter “traditional” forms of involvement in the wetland restoration and park activities, such as the need for spousal permission to engage in community movements.

Personal observations and research results show that there is no general recipe for community participation in water resource projects and each should be viewed on a case-by-case basis. Varying forms of relative, empowering and appropriate participation exist for each stakeholder group in the Parque Landeta project. Participation will most likely be in the form of park visitation, general care and support for the park’s natural resources, and outreach and environmental education programs.

Moreover, it is imperative that active stakeholders in this wetland restoration-park project design proposals that define their intentions, responsibilities, levels of commitment, funding sources and expected benefits. Through open communication and transparency between the City authorities and active stakeholder organizations, the planning, development and monitoring phases will become more organized and predictable. This process will attract additional stakeholders to the Parque Landeta project.

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“One challenge consists in separating the participatory process from local party politics.”
-*Sustainable Development, 2000.*
Inter-American Development Bank

“Parque Landeta? It’s going slow, it seems the mayor didn’t discuss the Parque Landeta situation, therefore there isn’t any money to start from. I think there’s going to be a meeting on Friday, but no one has told me anything. As you can imagine Cesar Arias [El Charco del Ingenio] is pretty mad, but from what I heard, the mayor is doing all this to get back at him... I was told this by someone from San Miguel’s high society and whom I’m sure isn’t lying.”

-*Mario Hernandez,*
Sociedad Audubon de Mexico, 2006

“With government nothing is ever clear.”
-*Cesar Arias de la Canal, Charco del Ingenio, 2006*

“Another challenge is to define the appropriate process and scope of stakeholder participation in each phase- design, implementation and evaluation, including monitoring- in light of the capacity of different groups to share responsibilities...”
-*Sustainable Development Department, 2000.*
Inter-American Development Bank

“CASA has the same problems [financial] as the other organizations. Parque Landeta is extra on everyone’s plate. For example, we know nothing about the wetland projects, because it is not my area, and neither is it my interest... because there is no time.”
-*Irma Salas, Centro de Adolescentes, 2006*

“Trust among stakeholders is essential... clear and realistic expectations about process outcomes, mutual respect and effort, willingness to seek joint objectives cooperatively...”
-*Ramsar Convention Bureau, 1999*

“We are serious about doing this... that is if the other organizations are going to participate... We really are committed to this.”
-*Audubon Board Member, 2005*

“The sustainability is in the NGOs’ relationship and sticking together. The park needs to be self-sustaining. Maintaining the park is the hardest part.”
-*Gerardo Arteaga*
Dirección de Medio Ambiente y Ecología 2005

“Finding: No generalized form of local participation exists; each situation provides a different context and potential for local participation. However, it is important to ‘capture’ the lessons learned from existing experience in order to enhance future efforts to encourage and facilitate local participation.”
-*Fleming, Bill, et al., 1988. USAID Consultant Report*

I. INTRODUCTION

Background

The previous quotations from literary sources and stakeholder interviews illustrate the theory, confusion, frustration, and hope affiliated with community participation, one of the leading factors in sustainable water resource management. As one can see from the dates associated with the quotations, community participation has been in the forefront of planners', managers' and research scientists' minds for decades. A comparative study shows that only 12% of non-participatory projects are successful versus a 68% success rate with community involvement (Sustainable Development Department, 2000). According to the International Food Policy Research Institute, only eight out of seventeen projects even incorporate some level of participation, and in most cases the involvement is not intensive enough to promote a community feel of ownership (Johnson, *et al.*, 2001). Theories of community participation are discussed later in this paper.

Numerous statistics demonstrate that the success rates of water projects depend on community participation (Sustainable Development Department, 2000). So why are the same mistakes being repeated during the planning, development and monitoring phases of watershed projects? This paper discusses the challenges of community participation as well as the achievements of five local stakeholder organizations within the Rio Laja Watershed in the State of Guanajuato, Mexico. Recommendations for effective community participation based on research and result analysis are presented at the end of this paper.

Statement of Purpose and Objectives

I resided in San Miguel de Allende in the State of Guanajuato, Mexico from September 2005 to January 2006 to help the Sociedad Audubon de Mexico plan for their participatory role in the development of a local municipal park, Parque Landeta, and their wetland restoration activities at Presa de Las Colonias. Refer to Figure 1 for a map of Mexico and the location of the State of Guanajuato.

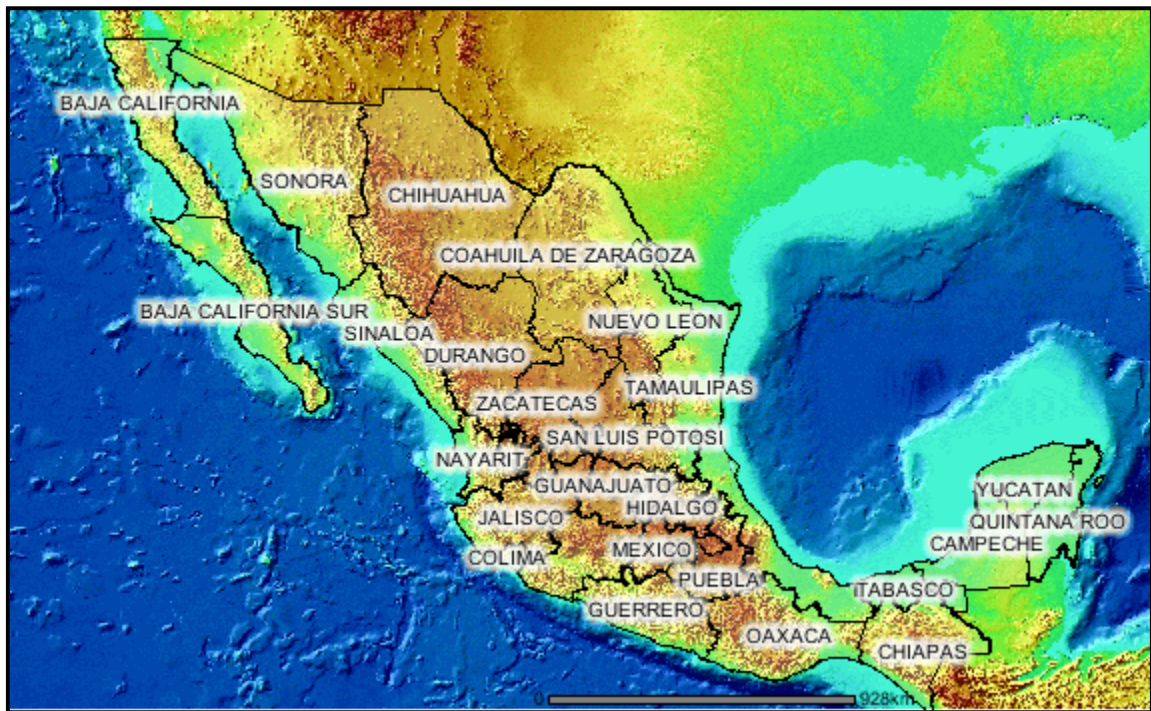


Figure 1. Map of Mexico and Central Highland location of the State of Guanajuato (INEGI, 2000)

The purpose of my professional project is to develop recommendations for the restoration of the wetland located in Parque Landeta that promotes its sustainability. My intention is that community stakeholders will feel a sense of ownership and participate in the management of these natural resources within the park. The development of Parque Landeta is an opportunity to create open dialog and healthy relationships among the municipality, the communities surrounding the park, and the five active stakeholder

organizations, which include the following: El Charco del Ingenio, Save the Laja, CASA (Centro de Adolescentes), FAI (Save the Children) and Sociedad Audubon de Mexico.

The author's recommendations that plan for high levels of participation should lead to community responsibility and empowerment, which is ideal because of the sustainability factor and the goal of self-perpetuating activities within a watershed. The six primary research objectives are outlined below, which describe in more detail the purpose of my research.

- 1- Identify stakeholders in the Parque Landeta restoration project
- 2- Identify current and potential local and upstream resource management problems that will threaten the sustainability of the wetland restored at Parque Landeta
- 3- Evaluate potential socio-environmental impacts on downstream communities resulting from the Parque Landeta restoration project
- 4- Assessment of current levels of community participation and the communities' *knowledge* and *perceptions* of the individual organizations involved in the restoration project and the city-owned Parque Landeta unit
- 5- Provide guidance and recommendations for the involvement of all stakeholders and interested community members during the planning, development and monitoring/maintenance phases of the project
- 6- Facilitate communication and develop alliances among the five active organizations and help create a successful coalition that can unite to problem solve, develop policies and successfully involve the local community

Community participation in water resource planning has been my primary focus during graduate studies at the University of New Mexico's Water Resources Program.

Traveling to the central highlands of Mexico allowed me to engage in the complex process of stakeholder and community planning and perform my professional project research. Using quantitative and qualitative methods I was able to identify the following:

- Community stakeholders
- Current levels of stakeholder participation
- Communities' and active stakeholders' expectations, goals, and needs related to the Parque Landeta project
- The community's perception of their natural environment
- Gender and subsequent constraints on female participation in natural resource management activities and wetland restoration activities
- Obstacles to stakeholder involvement and communication barriers between the primary organizations and the city
- Downstream impacts from the restoration of the wetland, and upstream impacts from natural resource management activities
- Appropriate indicators to be used for the final monitoring and maintenance phases of the wetland and park to be used by the community, volunteers and staff

This paper opens with backgrounds on the Rio Laja Watershed, San Miguel de Allende, Parque Landeta, and the surrounding colonias (small territories). Chosen research methods are then presented, followed by the author's research results. Next an analysis of results and a discussion of the stakeholders' future participation are presented. The paper concludes with personal recommendations.

Community Participation Literature

There are a number of key factors that contribute to the sustainability of water resource projects. The majority of international aid organizations such as the United States Agency for International Development (USAID) evaluate their watershed projects to assess their sustainability every 5-10 years using specific criteria. These types of assessments usually included indicators associated with technical appropriateness, economic efficiency, institutional support and assistance and participatory approaches (Fleming, *et al.*, 1988). Community participation, while viewed as a separate criterion in the USAID example, has been found to directly influence other criteria such as technology effectiveness, cost-benefit ratios and technical assistance strategies.

The International Food Policy Research Institute (IFPRI) is quite transparent in their statement that, “To succeed, watershed management has to be participatory” (Johnson, *et al.*, 2001:1). The Inter-American Development Bank (IDB) stresses the participation-success link even more dramatically stating, “Participation is not only the key ingredient in project quality and sustainability, but it also has an overall effect on governance and development performance that must be kept in mind in evaluating its cost and benefits” (Sustainable Development Department, 2000:2). Thus, community participation may be used as a lens to view the other criteria adopted to evaluate water resource projects.

There are a number of existing definitions for *stakeholders*, however the Ramsar Convention Bureau defines the term using a wetland resource management context, “Stakeholders are taken to be bearers of separate interests and/or contributions for the management of a wetland, with a particular focus on interest groups within local and

indigenous communities and the government agencies responsible for wetland management” (Ramsar Convention, 1999). Stakeholders identified in the Parque Landeta and wetland projects include local residents, student volunteers, NGOs, government agencies, and any other group that has a stake in these projects.

International development organizations have all adopted their own definitions of community participation. The IDB has a thorough definition of public participation as follows:

...a process by which the government and civil society open dialog, establish partnerships, share information and otherwise interact to design, implement, and evaluate development policies, projects and programs...that require the involvement and commitment of all interested parties, including among others the poor and traditionally marginalized groups, especially disadvantaged racial and ethnic minorities (Sustainable Development Department, 2000:2).

With respect to water resource projects, participation includes stakeholder involvement in establishing priorities, assisting in research, involvement in technological solutions and innovations and the development of monitoring and maintenance systems following the completion of the watershed restoration project (Johnson, *et al.*, 2001).

Every project requires a different level of participation, and it is important that social and environmental organizations begin to focus on appropriate levels of participation as well as appropriate participatory activities so as not to become fixated on certain participatory protocols and recipes for community involvement. The qualitative data results from this professional project research demonstrate the need for sensitivity while planning for community participation because the hundreds of stakeholders actually or potentially have very diverse interests, resources, and backgrounds.

II. BACKGROUND

The Rio Laja Watershed

The Rio Laja watershed is internationally recognized as having important habitat for migratory birds. Additionally, the river and its tributaries provide the valuable service of aquifer recharge and are critical drinking water sources for many communities throughout the State of Guanajuato. Yet the Rio Laja watershed is in critical danger of ecological and socioeconomic collapse if nothing is done to promptly address its serious issues of poor surface water quality, groundwater contamination and water table decline, as well as socioeconomic hardship in rural areas of the state.

The reservoir/wetland at Parque Landeta is one of the relatively few safe havens for water-loving birds in the State of Guanajuato (Putney, 2006). The restoration, preservation and education goals for the park and wetland area of San Miguel are important steps in the overall reparation of the watershed. Protected habitat will be created for birds and wildlife, there will be downstream water quality improvements to benefit water users, and local communities will become educated in the importance of water resources protection and conservation. Refer to Figure 2 on the following page for a view of the Laja-Lerma watershed area, Lake Chapala and the location of San Miguel de Allende.

The Laja watershed makes up approximately 1,250,000 acres with the majority of the area located in the State of Guanajuato. The two most populated municipalities included within the watershed boundaries are Dolores Hidalgo and Allende. The Laja headwaters are located to the northeast of San Miguel within the municipal boundaries of San Felipe, San Diego de la Union and San Luis de la Paz. The stream flows southwest

through the mountain ranges Sierra Madre Oriental and Sierra Madre Occidental (Swanson, 2000). The Rio Laja contributes to the perennial flows of the Rio Lerma, which empties into Lake Chapala to provide an abundance of water for irrigation and drinking purposes in the State of Jalisco and the City of Guadalajara.

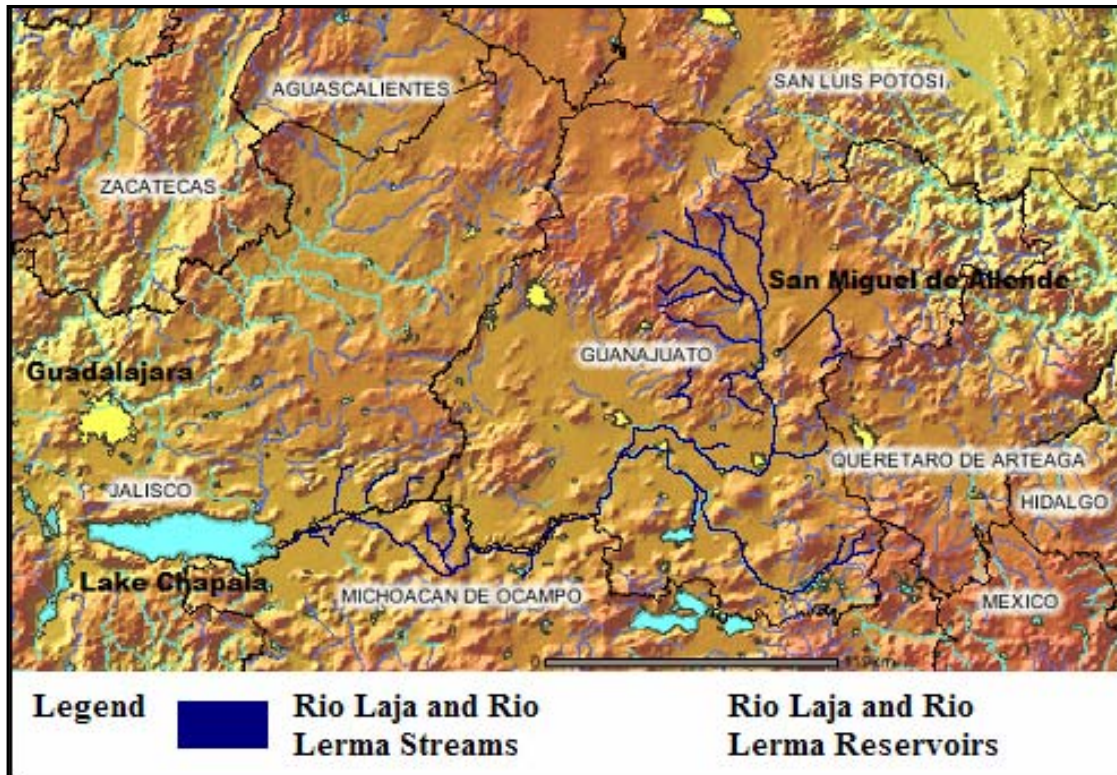


Figure 2. Map of the Rio Lerma-Rio Laja watershed as it flows into Lake Chapala

Numerous non-governmental organizations (NGO's) and municipalities are concerned about the future surface water and groundwater supplies from the Laja and its tributaries. The primary land use issues causing decreases in groundwater levels and surface water flows are over-grazing on fragile or steep terrain, deforestation, over-pumping of the aquifer by the inefficient farming industry, and gravel and sand mining operations in the river channels and riparian areas. Other unsustainable activities include water contamination from urban areas and agricultural chemical use, poor urban water supply/use management, and dramatic increases in population.

These unsustainable activities have had numerous negative affects throughout the entire watershed. The headwaters of the watershed in the San Luis de la Paz area are now found to have dangerously high levels of fluoride and arsenic in the upper portion of the large, basin-wide aquifer, the Independence aquifer. Over-pumping of groundwater for agricultural purposes (there are more than 2000 illegal wells drilled into the Independence), is causing natural sources of sodium, arsenic and fluoride to move upwards from the fractured rock aquifer into the shallow granular aquifer from which water is drawn (Ortega, 2005). The residents of San Miguel are concerned that the plume of contamination will eventually reach their area, but in the meantime 4000 children and adults in San Luis de la Paz have teeth that are being eaten away and severe health problems.

Large-scale farming businesses are currently being blamed for most of the water scarcity and quality issues in Guanajuato. It is estimated that 85% of surfacewater and groundwater use in the state is by the farming industry. However, the entire Mexican breadbasket, or Bajío, is slowly drying up as the Independence aquifer is mined, and “eco-refugees” continue escaping the environmental tragedy by moving to the north, or the United States. The 400,000 hectares of land in agriculture are shrinking as farmers with small plots can no longer afford to drill deeper wells; in northeast Guanajuato some are 300 meters deep (Luxmoore, 2005c). This downward spiraling situation is already having economic impacts on the state and local populations, as well as severe repercussions for the social and cultural sustainability of rural communities.

While scientific literature normally points to the groundwater pumping rates of the agriculture industry in Mexico, a significant surface water issue commonly

overlooked within the Rio Laja-Rio Lerma watersheds is water harvest irrigation or WHI (Scott and Silva-Ochoa, 2001). Social, economic, cultural and historical considerations are involved in the hydrological assessment of WHI's. Thousands of small reservoirs were constructed for irrigation and industrial purposes during Mexico's 19th century hacienda period and for the *ejidos* that followed. These aging reservoirs and irrigation systems collectively produce a vast amount of water storage capacity, but are managed collectively by small Mexican agrarian communities called *ejidos*, and avoid the radar of government water policy.

Parque Landeta and the Presa de las Colonias Wetland Projects

Parque Landeta is a 62-hectare parcel of municipally owned land located east of the Botanical Gardens of El Charco del Ingenio. Figure 3 on the following page shows the geographic layout of both the park and El Charo del Ingenio gardens.

The municipal park, botanical gardens, el arroyo del Obraje and the two reservoirs/wetlands Presa de Las Colonias and Arroyo del Obraje comprise an area of 100 hectares, and are considered an ecological conservation zone by the City of San Miguel. The park and intermittent stream system are part of the greater Rio Laja watershed. Parque Landeta also houses a municipally managed tree nursery and compost area, and it is considered to be an important recreation area for San Miguel and the surrounding colonias.

Parque Landeta receives a variety of users and has several different types of land use. The park is estimated to receive more than 150 visitors on the weekends according to Charco del Ingenio staff. The park also hosts the annual Festividad de la Santa Cruz del Charco del Ingenio, which draws thousands of guests (Arias de la Canal, 2005). The

majority of visitors are from the low-income neighborhoods of Colonia Palmita de Landeta and Rancho Amistad on the weekends for picnics, family gatherings, walks, bicycling and soccer. When asked about the population dynamics of park visitors, the director of El Charco del Ingenio, Cesar Arias, suggested that 95 percent of the visitors are of local Mexican descent and 5 percent are foreign residents or tourists. In contrast, 85 percent of the botanical garden's membership is foreign and 15 percent local Mexican residents (Arias de la Canal, 2005). El Charco del Ingenio charges an entrance fee of three US dollars.



Figure 3. The area of El Charco del Ingenio and Parque Landeta

During the Spring of 2005, the City of San Miguel and a number of local civic organizations began meeting to begin the overall plan for restoration and development of Parque Landeta and the associated wetland area, Presa de Las Colonias. For many years, the park has been maintained and developed by El Charco del Ingenio, during which time they planted trees of various native and experimental species like pine, developed picnic areas, grills and plazas, created terracing, and built two dry latrines (El Charco del

Ingenio, 2002). Over time the organization, in cooperation with the Audubon, has also constructed a number of islands in the Presa de Las Colonias reservoir, which has dramatically increased bird populations and habitat diversity.

In January 2005, both El Charco del Ingenio and Parque Landeta were included in a Municipal Zona de Preservación Ecológica (Municipal Ecological Preservation Zone). The participating organizations and City of San Miguel are now pursuing federal protection for the entire area. This has important implications because the zone is currently of great interest to the real estate business and the protection status will include a buffer zone that will prohibit future development (Putney, 2006). Currently large homes and subdivisions, primarily built and owned by foreign residents, are creeping up the hill from San Miguel and now surround the southwestern portion of El Charco del Ingenio. The Department of Environment and Ecology and the staff of El Charco are very concerned that this trend will not cease until the official zoning of the area changes.

At this point in time the City authorities SAPASMA (Potable Water and Sewage System of San Miguel de Allende), and the Department of Environment and Ecology, claim they have been pleasantly surprised to see the joint efforts of the actively participating civic organizations including El Charco del Ingenio, Save the Laja, CASA (Centro de Adolescentes), FAI (Save the Children) and Sociedad Audubon de Mexico. The planning and design phases of this ecologically and socially progressive project have also included a handful of other secondary local and regional organizations.

The actively participating stakeholder organizations expect the future management of Parque Landeta to resemble that of a local civic organization. There will be a paid director and a “Consejo de Administracion del Parque Landeta”, or board of

directors, both of which were anticipated to be in place by the beginning of January 2006. Additional staff will be required to maintain the park and provide 24-hour security. The organizations are hoping that the new personnel will not only serve as security and as maintenance crews, but will also be properly trained to be interpreters and gardeners for the park. Financing for Parque Landeta is expected to come from committed annual municipal funds and private donations (Putney, 2006).

The community stakeholders and city have many infrastructure ideas and plans for the park, which include the following: a soccer field, basketball court, skate park, herpetarium displaying live reptiles from all over the nation and world, small buildings for staff offices and park maintenance, bicycling paths for adults and children, and bird viewing structures to observe the hundreds of residential and migratory birds that frequent the upland and wetland habitats of the park. Figure 4 on the following page shows the tentative layout of the park as of Fall 2005.

Perhaps the most significant addition to Parque Landeta will be the constructed wetland water treatment system, which will be located in the eastern end of the park as shown in Figure 4, and will treat raw sewage from neighboring Colonia Palmita de Landeta. The 5 liters/second flow of treated water will ensure that the body of water, the Presa de Las Colonias reservoir, will be perennial (Silva Godoy, 2005). Currently the reservoir shrinks to puddle size by the end of the annual dry season.

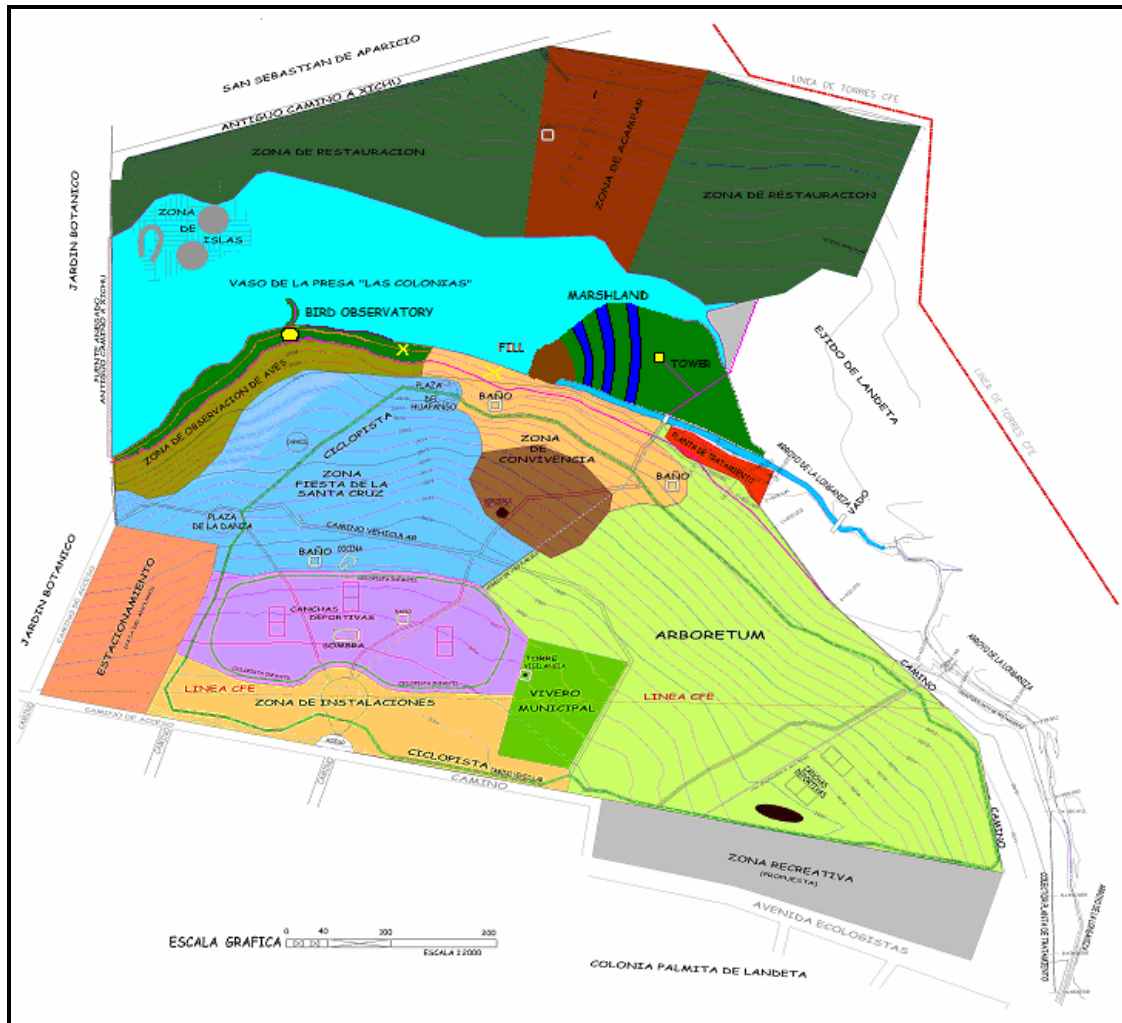


Figure 4. Parque Landeta proposed development and marshland/treatment wetland

The following areas and designs are important to notice in Figure 4:

- proposed marshland area ■
- existing intermittent wetland area and canal ■
- proposed constructed wetland water treatment plant ■
- the existing path used by families living across the wetland in Rancho Amistad ■
- suggested locations for Audubon bird viewing infrastructure ■
- vegetation management areas ■

It is also important to note that in 2001 FAI, CASA, Charco del Ingenio, Sociedad Audubon de Mexico, and Save the Laja each gave three thousand pesos (300 USD) for designs from the Comisión Estatal de Agua Guanajuato for the constructed wetland water treatment plant for Parque Landeta. The treatment plant has not been constructed because of lack of funding, participation, and uncertain plans for the park. However, the State Water Commission, the municipality and the local urban water authority, SAPASMA, have recently decided to formalize their financial contracts and begin construction of the plant in Parque Landeta this Spring, 2006.

The Comision Estatal del Agua Guanajuato (CEAG) has prepared designs for a “Free Water Surface” (FWS) system, verses a “Vegetated Submerged Bed” (VSB) wetland system, meaning that the constructed wetland will resemble a natural wetland in appearance, but will be in a confined space and lined on the bottom (Silva Godoy, 2005).

Constructed wetlands use the physiochemical and biochemical processes of soils, plants and microorganisms found in naturally formed wetlands to remove municipal and agricultural wastewater pollutants. They are typically utilized to remove suspended solids, biochemical oxygen demand (BOD) and nitrogen, but may also be used to remove a number of constituents such as zinc, chromium, iron, lead, cadmium, selenium and manganese. These types of systems have additional benefits such as low maintenance and cost, creation of animal and bird wetland habitats, green areas and fewer chemical input requirements (US EPA, 1999).

When properly constructed and fenced, constructed wetlands pose no human safety issues, have minimal odor, and usually do not attract mosquitoes. Constructed wetland wastewater treatment plants are becoming increasingly popular in developing

nations and arid parts of our world. These systems are considered to be “appropriate technology” for small communities like Colonia Palmita de Landeta because they require little maintenance, are easy for locals to operate and repair, and are generally low-cost to build and maintain (US EPA, 1999).

An “enhancement” marshland area, which enhances water quality by serving as tertiary wastewater treatment, may also be constructed in the eastern portion of the reservoir and add diverse bird habitat. Water quality standards are not easily met during the initial development and stabilization phases of constructed treatment wetlands. A mechanism like an enhancement marsh can potentially mitigate negative ecological impacts at Presa de Las Colonias. Diverting water through a large marsh area with long hydrologic retention times and planted wetland vegetation should be sufficient for tertiary treatment to occur (Toet, *et al.*, 2005).

One of the most important benefits of the proposed enhancement marshland will be the addition of an entirely new bird habitat at Parque Landeta. There are over 120 bird species that enjoy the current habitats at Parque Landeta and Charco del Ingenio, as observed by Susan and Wayne Colony since September 2003 (Colony, 2005). Although the Colonys have not identified any US listed endangered or threatened bird species, they have viewed a number of rare species in Parque Landeta.

The nation has watched many of the small reservoirs like the Presa de Las Colonias and the Presa Obraje become shallow wetlands that are biologically and socio-economically significant. Scott and Silva-Ochoa describe the current situation of these scattered water harvest irrigation systems in the following quotation:

A combination of factors shapes the way in which WHI is managed- factors that are both specific to the resource and user group (water scarcity, social stratification, and organization) and generic to the larger context in which these are embedded (water competition, government intervention and economic forces)...Social, class and gender dynamics also clearly mediate access to these resources and fundamentally shape the rules and conventions that determine water allocation (Scott and Silva-Ochoa, 2001:5).

Future development of these WHI systems has been banned after the Mexican Federal government determined that they significantly impede surface water flows to Lake Chapala. Currently, the 28,895 small water storage reservoirs dispersed throughout the Lerma-Chapala basin, including the Rio Laja watershed hold more than 314 million m³ of water when at full capacity (Scott and Silva-Ochoa, 2001).

The four small reservoirs located near Parque Landeta in the outskirts of San Miguel were originally constructed during the hacienda period and are within 1 mile of each other. They can be viewed in Figure 3 on page 25. These bodies of water are connected by the Arroyo de Obraje, which is a tributary of the Rio Laja. During 2000, surveys were performed to assess hydrological and riparian area conditions of the watershed, and the Obraje stream system was found to be in good riparian health and have low erosion rates (Swanson, 2000). However, these reservoirs are aging and because of upstream watershed degradation that has affected water quality and quantity, they are now intermittent bodies of water that have high, levels of nitrogen, phosphate and other agrochemicals during dry seasons.

Although Kent Swanson's 2000 report detailed the healthy conditions of the stream system that connects the reservoirs, a recent 2005 report from USDA Forest Service Research Ecologist, Al Medina, suggests that the upstream reaches of the Arroyo de Obraje suffer from poor water quality. His report states the following:

I examined 6-7 km of channel and determined that it was in stable hydrogeomorphic conditions. I further recommended that no action be taken to improve the physical nature of the channel, but instead to focus on remediating the water quality component of the influent. In addition, various forms of contamination from petroleum, agricultural, recreational, and human waste were evident in the delta of the Charco [Presa de Las Colonias wetland], and recommended that soil/water samples be examined for presence of heavy metals and other toxic compounds that could imperil the valuable natural area (Medina, 2005).

The Medina report of the wetland and Parque Landeta area was based on visual appraisal of the tributary reaches and delta, and not through data analysis. Nonetheless, this report brought local watershed degradation into the spotlight.

Non-governmental organizations quickly responded, such as El Charco del Ingenio Botanical Gardens, because their gardens surround the Presa de Las Colonias. The Audubon Society of Mexico responded due to the bird populations and diversity at the wetland. Water samples were collected quickly after the report was reviewed, however the reservoir was virtually dry and consequently samples reported dramatically higher concentrations of contaminants than what realistically exist. Despite inaccurate water quality test results, the push for a newly constructed wetland water treatment facility has become stronger. Engineers with the State Water Commission who originally designed the plant suggested that the tributary canal water could be directed into the treatment facility to resolve water quality issues in addition to urban sewage treatment (Silva Godoy, 2005).

Currently, during large precipitation events the upstream municipal sewage collection area overflows and combines with the agrochemicals and further degrades the water entering the wetland. The involved organizations are discussing the construction of a marshland area to be situated next to the proposed treatment plant for tertiary treatment

purposes and for additional wildlife and bird habitat. Lastly, although the Medina report claims that the canal used by the farming communities surrounding the wetland area is in stable hydrogeomorphic condition, upstream channel restoration and introduced meandering patterns have been discussed by the organizations involved in this project (Hernandez, 2005).

It is important to view the watershed holistically rather than one reach at a time. The anticipated results of the Parque Landeta and wetland projects are improved local and downstream water quality, increased area for infiltration, decreased erosion, enhanced bird and wildlife habitats, additional recreational options, and environmental education opportunities. Downstream reaches of the arroyo system, which empties into Presa Allende, will surely benefit from the improved water quality and quantity that the project participants hope to achieve (Hernandez, 2005). However, in watershed management, it is crucial that proceeding project planning and implementation, true causes of watershed degradation are identified. The wetland at Presa de Las Colonias was historically perennial and water quality was not questioned. The treatment plant with its guaranteed additional flows and the park development may just be another bandaid and the projects are not as necessary as the investigation of upstream land use practices that have slowly diminished local environmental services.

San Miguel de Allende and Surrounding Colonias

The roots of the City of San Miguel de Allende date back to 1952, when it was founded by Fray Juan de San Miguel but already inhabited by the early native ethnic group Chichimecas. As it grew, a successful textile industry began to boom and

reservoirs such as the Presa de Las Colonias at Parque Landeta were built to provide water for downstream factories whose infrastructure and pipe ways exist today.

San Miguel is now considered a “National Patrimony” site and its primary economic activity is tourism. The town is host to international music and culture festivals, bull running events and dance performances. The city’s cobblestone streets are clean, there is a high level of security, the colonial buildings are painted, and festivities are weekly. However, the population is growing rapidly and is estimated at approximately 100,000 permanent residents. This is up from the 2000 Mexican census of 60,000 (INEGI, 2000). Within the urban city limits, a person can easily distinguish the poor and the extremely wealthy neighborhoods from one another. San Miguel is home to thousands of North Americans and Europeans and often times the friction between native and non-native residents is evident.

At the same time, many of the surrounding colonias, or “integrated territories”, are growing at an even more rapid rate. It is estimated that Colonia Palmita de Landeta, which is located on the periphery of Parque Landeta, is growing at an annual rate of 28 percent. The 2000 Mexican Census population of these areas was 492, and is now estimated at 1500 permanent residents (INEGI, 2000). Other rural communities such as Rancho Amistad, also located on the periphery of the wetland area and park as shown on the following page in Figure 5, are growing more slowly.

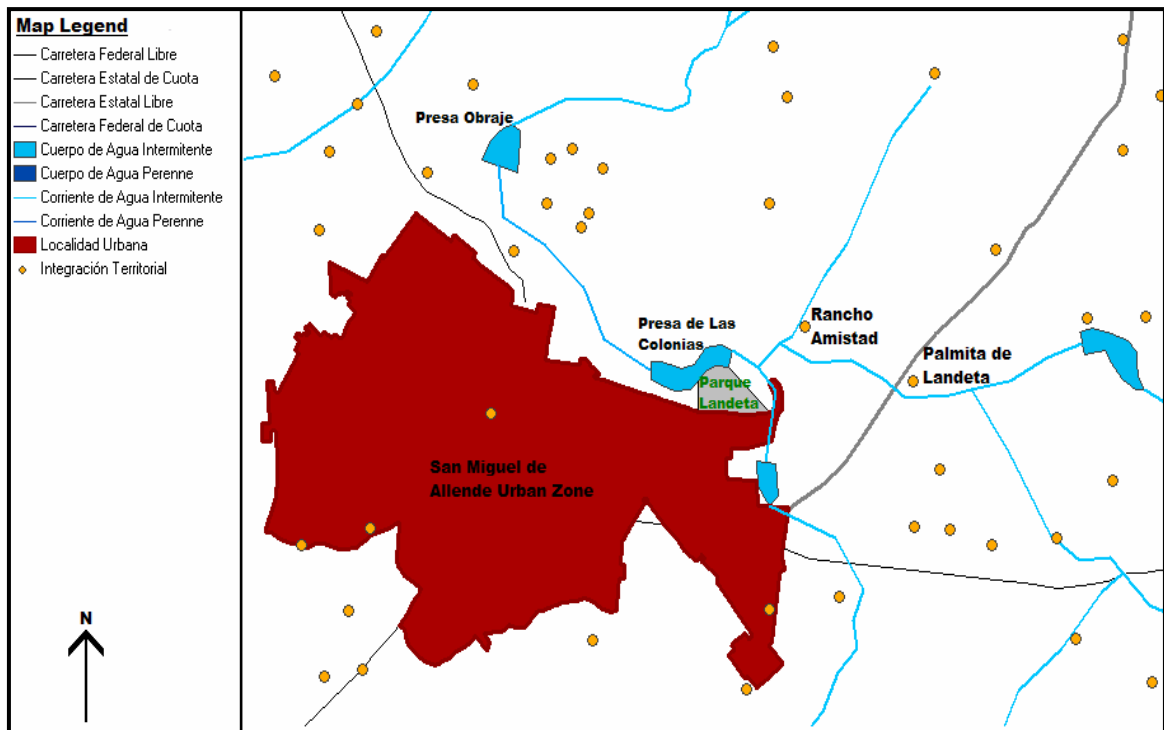


Figure 5. Map of the San Miguel Urban Zone and the surveyed surrounding colonias Palmita de Landeta and Rancho Amistad

People are migrating from these rural areas toward urban areas or the United States and consequently abandon local farming practices. Figure 5 shows the relative locations of the communities, namely San Miguel, Colonia Palmita de Landeta and Rancho Amistad, as well as the park and wetland, Presa de Las Colonias.

The Arroyo de Obraje connects the three large, aging reservoirs that have become shallow wetland areas due to high upstream erosion rates. The upstream colonias shown in Figure 5 and the City of San Miguel, although located within a mile of each other, have noticeably different population characteristics, which can be found in Table 1 on the following page.

Categories	San Miguel	Palmita de Landeta	Amistad
Population	59691	432	194
Male %	47.6	45.8	46.9
Female %	52.4	54.2	53.1
% Pop >18	57.5	55.3	52.1
Male % >18	45.4	43.9	50.5
Female % >18	54.6	56.1	49.5
% Pop 15-24	19	23	16.5
% No Schl 15-24	67.9	95	96.9
% Pop 6-14	20.4	21.5	24.5
% Pop 6-14 Illiterate	11.8	22.6	12.5
% Pop No Health Services	67.3	91	90.2
% Pop Working	37.7	31.3	21.1

Table 1. 2000 Mexican Census Data- Population characteristics of San Miguel, Colonia Palmita de Landeta, and Rancho Amistad

The State of Guanajuato, and the study area in particular, have extremely high rates of male migration to the United States for work (Luxmoore, 2005b). This migration has profound impacts on families and communities. Palmita de Landeta and Rancho Amistad are shown to have one of the highest rates of migration, and the statistics in Table 1 show that they have lower over-18 male populations than either San Miguel. Irma Salas of Centro para los Adolescentes during an interview confirmed this situation claiming that many of the households in Palmita Landeta receive money from husbands and fathers residing in the United States for labor purposes (Salas, 2005). Colonias Palmita de Landeta and Rancho Amistad also have the highest rates of 15-24 year olds not enrolled in school. In addition, these two colonias lack access to health care services. San Miguel in 2000 had the highest employment rate of the three.

Another observation of which to take note is that the author discovered that only 12 of the 57 (or 21 percent) of the interviewed households in Palmita de Landeta had lived in the area for more than 5 years. Therefore, it is probable that the majority of these families were not surveyed during the 2000 Census. In addition, the recent residential surveys showed an average household size of 4.68, which is below the reported 2000

census of 4.97. The overall perception of this particular colonia resulting from interviews with organizations such as CASA and Save the Children (FAI), and from the 2000 Census and recent door-to-door surveys, is that many of the homes in Palmita de Landeta have been built within the last 5 years, are low-income, government subsidized housing-units, and are owned by young couples or individuals that are only now beginning to expand their families. The community is often described as “high risk”, has been reported to have high drug and alcohol related crime rates, and is a priority area for social organizations in the region (Salas, 2005). Photograph 1 depicts the Colonia Palmita de Landeta neighborhood.



Photograph 1. Avenida 1 de Mayo, Colonia Palmita de Landeta

Rancho Amistad is a smaller community, currently estimated to be 55 families. It is relatively rural, lacking a direct passage route or road for transportation into the

colonia. The majority of residents use the worn path next to the wetland through Parque Landeta to-and-from work or for their daily activities. Students and facilitators did not interview households for this project, but instead residents were interviewed as they passed through the park. The 2000 Census population was 194, and is now approximately 300 individuals using the colonia's 2000 average household size of 5.47 and the fact there are now 55 families.

To the northeast of Rancho Amistad and adjacent to the wetland and park is the Ejido de Landeta. Ejidos prevail throughout Mexico and the State of Guanajuato. They are defined as agrarian communities, whereby land and water resources are managed collectively by farmers although the land has recently been privatized after decades of common property management. The Ejido de Landeta area is depicted in Photograph 2.



Photograph 2. Ejido de Landeta and Presa de Las Colonias wetland tributary

Corn and alfalfa are the primary crops cultivated and harvested at Ejido de Landeta. There is also a scattering of homes located on the land. Water canals expand throughout the ejido; some are newer, narrow offshoots, while others are old, straight, deep and were likely to have been constructed during the Hacienda Landeta period of the late 1800's. The cornfields of the ejido and proposed site for the wetland treatment plant adjacent to the ejido as shown in Photograph 2 on the previous page. Clearly there are potential natural resource management and contamination issues pertaining to the proximity of the ejido and treatment plant.

III. METHODOLOGY

Introduction

The following items are the methods utilized to collect both qualitative and quantitative data:

- Visitation of a reference treatment wetland site in Santa Catarina, Guanajuato
- Photographic documentation of the site as well as collection of aerial photography
- Participatory research methods included:
 - Delineation of wetland site through visual appraisal with active stakeholders who frequent the park area and collection of oral histories
 - Structured interviews and communication with executive directors, staff and board members of the five actively participating organizations to help with the identification of other community stakeholders, delineation of the wetland, the evaluation of past and current levels of community participation in watershed activities, and ideas/goals for Parque Landeta

- Structured and unstructured interviews with upstream and downstream residents from local colonias and San Miguel de Allende
- Interviews of Colonia Palmita de Landeta residents and Parque Landeta visitors
- Workshop activities with local school children and young adults:
 - 1- Instruction on watershed and wetland dynamics and services
 - 2- Solicited ideas for the park as well as for the students' future involvement in the planning, development and monitoring phases
 - 3- Environmental education and participation discussions

The advantages of these methods were the ability to collect a substantial amount of qualitative and quantitative data in an efficient amount of time, and the participation from local students and stakeholders during the entire surveying process. The involved stakeholders were relatively easy to work with, while the organization and instruction of high school students was challenging but rewarding for the entire group. The observed disadvantages in utilizing the methods described above were the lack of consistency in students' surveying methods and results despite active supervision.

Interview with Active Stakeholder Organizations

Structured and unstructured interviews were performed with active community stakeholder organizations. Board members and directors of the following organizations were interviewed during the months of November and December 2005:

- El Charco del Ingenio, <http://www.laneta.apc.org/charco/reserve.htm>
- Centro para los Adolescentes de San Miguel de Allende (C.A.S.A.), www.sanmiguel-casa.org
- La Fundacion de Apoyo Infantil Guanajuato (F.A.I.), www.faipto.com
- Sociedad de Audubon, Mexico, A.C., <http://www.audubonmex.org/index.htm>
- Salvemos al Rio Laja, A.C., <http://www.rio-laja.org/>
- The City of San Miguel de Allende, <http://www.sanmiguelallende.gob.mx/>

While interview questions varied according to the subject's position with the organization, experience and project participation goals, the following questions were asked during each interview:

- How long have you been a resident of San Miguel and what is your position with this organization and how long have you worked with them?
- Please explain your organization's proposal for the park.
- Do you feel that your expectations have been met and that your interests have been heard during the reunions and planning sessions for Parque Landeta?
- Do you feel well informed?
- Do you have any concerns about the planning process or do you feel it has gone well for you and your organization?
- Whose responsibility is it to inform you about Parque Landeta developments?
- Do you feel that you have a good understanding of the intentions and proposals of the other organizations?
- Are there additional people or groups that probably have an interest in Parque Landeta but have not been represented at the meetings or do not even know about the project?
- What is your overall vision for the park? The wetland area and constructed wetland?
- Do you have any idea who the current users are of the park and where they live?
- What would be the best indicators to use for monitoring the success and sustainability of the infrastructure and wetland over time?
- Who will be the representative from your organization on the Parque Landeta board of directors?
- What factors are important in making this project sustainable?
- Do you feel that community at large should participate in this development?

The Workshops

Classroom Workshop I- Ninth Grade Sociology/English Classes

Twelve ninth graders from the Instituto Tecnologia de Universidad de Guanajuato Social Science and English classes participated in a workshop that explored their ideas regarding the Parque Landeta development and restoration. Their perception of stakeholders who may or may not already be participating in the planning process was evaluated during the first hour of the workshop, as well as their knowledge of wetland services. The stakeholder identification exercise was performed using maps of the areas, conversations about social and environmental impacts resulting from the treatment plant

and proposed park developments, and group brainstorming. This data was used later in the process of identifying project stakeholders for this project.

The second part of the workshop was directed toward developing resident and park visitor interview questions. The survey questions developed by the students were compiled and organized into a complete questionnaire by the facilitators. Students were able to learn about their community's participation in the Parque Landeta/wetland projects, and also have the opportunity to develop meaningful surveys to be utilized when interviewing the residents of Colonia Palmita de Landeta.

The twelve students were instructed in proper interviewing and sampling techniques as well as etiquette and safety issues before their fieldwork in the Colonia. The qualitative results are being used for this professional project as well as for the plans developed by the Parque Landeta planning team. The active stakeholders also suggested that the public would feel more comfortable responding to surveys directed by local Mexicans rather than foreign researchers. The overall goal identified by the facilitators was to identify appropriate and desired recreational and ecological restoration activities. The details of the workshop format and participants are presented below.

Workshop Facilitators:

Tara Putney, Master of Water Resources Candidate, University of New Mexico
Eugenia Velasco, Project Coordinator, La Fundacion de Apoyo Infantil Guanajuato (FAI),
Mario Hernandez, Executive Director, Sociedad Audubon de Mexico, A.C.

Student Participants:

Jonatan Jocsan Ramirez
Orlando José Diaz
Ilizabeth Perez
Zaira Aurení Chávez
German Llamas Reyes
Luis Fernando de Anda Garcia

Gabriel Ordoñez
Miguel Angel Chávez
Jorge Bravo Rodriguez
Ernesto Flores
Jorge Alonso Rodriguez
Emmanuel Alberto Marque

Workshop Format:

First Hour-

Tara- Provide students with maps of the Parque Landeta project area

Mario- Describe the general project goals and the participants (10 minutes)

Tara- Stakeholder identification exercise (10 minutes)

Tara- Ideas for the park and wetland project (15 minutes)

Eugenia and Tara- Interview Protocol-101 for students (25 minutes)

- Discussion of the necessity of initial diagnostics prior to projects planning

- Survey methods and convenience sampling

- Identification of representative groups in the population

- Safety issues

BREAK

Second Hour-

Students- Generate survey question centered on three main topics: general personal information, wetland/environmental knowledge, Parque Landeta perceptions and information

Tara/Eugenia/Mario- Answer student questions



Interview questions created by the students were reviewed by the facilitators. A final survey was developed focusing on four main themes: population, environment, Parque Landeta, and project explanation, which included participation evaluation. Examples of survey questions translated into English are presented below:

Photograph 3. High school workshop- students developing survey questions resident Surveys

I. Population

- How many minors and adults live in your home?
- How long have you lived here in this home?
- What do the adults in your home do for occupations?

II. Environment

- Can you name the plants/animals/birds that you know in this zone?
- Do you know what a wetland is? If yes, can you describe the services wetlands provide?
- What do you think should be done to improve the environment in San Miguel?

III. Parque Landeta

- Have you heard of Parque Landeta? If yes, do you know where it is?
- Have you visited Parque Landeta? If yes, with what frequency? And do you know of any uses of the natural resources within the park?
- What sports or recreational activities do you enjoy?
- Have you visited the Botanical Gardens of El Charco del Ingenio? Why or why not?

IV. Project Explanation of the Project

- Are you interested in participating in the project described? If yes, in how would you like to participate?
- What activities or services would you like to have in Parque Landeta?
- Do you think in the future the people of the colonia will be interested in working in the park? Why or why not?

Visitor Surveys

I. Population

- Where do you live?
- Do you normally come alone or with family?
- What do you/family adults do for occupation(s)?

II. Environment

- What places do you frequent when you go for a day in the country or outdoor excursion?
- Can you name the plants/animals/birds that you know in this zone?
- Do you know what a wetlands is? If yes, can you describe the services wetlands provide?

III. Parque Landeta

- What is your frequency of visitation to this park?
- What do you like about the park? Dislike?
- Do you know of any local users of the natural resources within the park?

IV. Explanation of the Project

- Would you like to participate in this project? If yes, how?
- How interested are you in participating in activities related to environmental education?
- Do you think there should be a fee to enter the park? Why yes/no?

See the Appendix for the actual residential and park visitor surveys.

Classroom Workshop II- Palmita de Landeta Elementary School, Ages 11-14

Facilitator Eugenia Velasco, Environmental Education Project Coordinator at La Fundacion de Apoyo Infantil Guanajuato (FAI), designed a workshop for elementary school children and educators to assess their knowledge of environmental services and potential participation levels in future field and classroom education programs related water resources, ecology and biology. Twenty-seven students ages 11-14 and one teacher were surveyed using written response to carefully chosen questions. The elementary school questionnaire can be viewed in the Appendix, following the resident and visitor survey forms. The data collected from this workshop has been used by the author, FAI and CASA for the purpose of identifying the children's perceptions, concerns and ideas and to discover appropriate ways they may be involved in the project.

Community and Visitor Interviews

Residents of the Colonia Palmita de Landeta and the visitors of Parque Landeta were interviewed with the participation of high school students on three separate occasions over three weekend periods during the months of November and December. The author also performed park visitor interviews during the week on a Wednesday morning and Thursday afternoon. The interviewing sessions took place at different times of the day and on different days of the week in order to observe behavioral and population variances.

The interview schedule is presented below:

Weekend 1- November 19th Saturday interviews with student volunteers, 10am-12pm

Weekend 2- November 27th Sunday interviews with student volunteers, 12pm-2pm

Weekend 3- December 2nd Friday interviews with student volunteers, 3pm-5pm

Weekday Session- December 21st Wednesday interviews of park visitors, 10am-12pm

Weekday Session- December 22nd Thursday interviews of park visitors, 3pm-5:00pm

In the neighborhoods of Colonia Palmita de Landeta, fifteen-minute residential interviews took place in teams of two to ensure safety and complete comprehension of interview responses. Each team chose a partner to record observations and site quotations from the interview, while the other partner asked the survey questions and recorded responses.

Every weekend interview session, students were instructed in the following: introduction of themselves and the project, the proper way to express the confidentiality and anonymity of the survey and results, convenience sampling procedures, and how to maintain a safe environment during the interview. The students walked from door to door, interviewing residents for approximately 2 hours each a day on three separate occasions. The students chose residents based on a 2-4-6 pattern sequence. In other words, they would first sample the second house on a street, and then skip down the street four houses and then an additional 6 regardless of whether a residence was occupied or empty. Only individuals older than 12 years of age were surveyed for the residential surveys.

Visitors were surveyed within the park during the first two weekend sessions, and then at the main entrance-parking area of the park. The surveying team discovered that the interior of the park was too large to reach visitors in a timely manner. Therefore the surveying process was moved upland in order to catch people driving or walking into the area. There were few park visitors during most surveying sessions. It is important to

note that runners and bicyclists, and other exercising visitors were not surveyed. Only visitors 12 years of age and older were surveyed at the park

High school students also interviewed each other during downtimes. A total of 6 high school students were interviewed utilizing the residential survey. This process gave them practice and instruction associated with interviewing protocols and gave them an opportunity to express their personal perceptions and ideas about the park and wetland area. This data was used by the author, FAI and CASA to evaluate the visitors', residents' and students' perceptions of the park and wetland resources and to identify appropriate and meaningful ways in which they may be involved in the projects.

A total of 109 subjects were surveyed for this professional project's research purposes and for the local stakeholder organizations' community diagnostic studies. The following populations were surveyed by the author, high school students and staff from FAI and Sociedad Audubon: 57 residents of Colonia Palmita de Landeta, 19 Parque Landeta visitors, 6 high school students, and 27 elementary school children.

Figure 6 on the following page shows the Colonia Palmita de Landeta streets and park areas where surveying took place. The residential survey locations are depicted in dark purple, as well as the location of the park entrance where visitors were interviewed. The aerial photograph also portrays the locations of the proposed wetland water treatment plant (red), tertiary-treatment marshland area (blue), existing path used daily by Rancho Amistad (pink), the park boundary (green), and the Landeta ejido and wetland area.

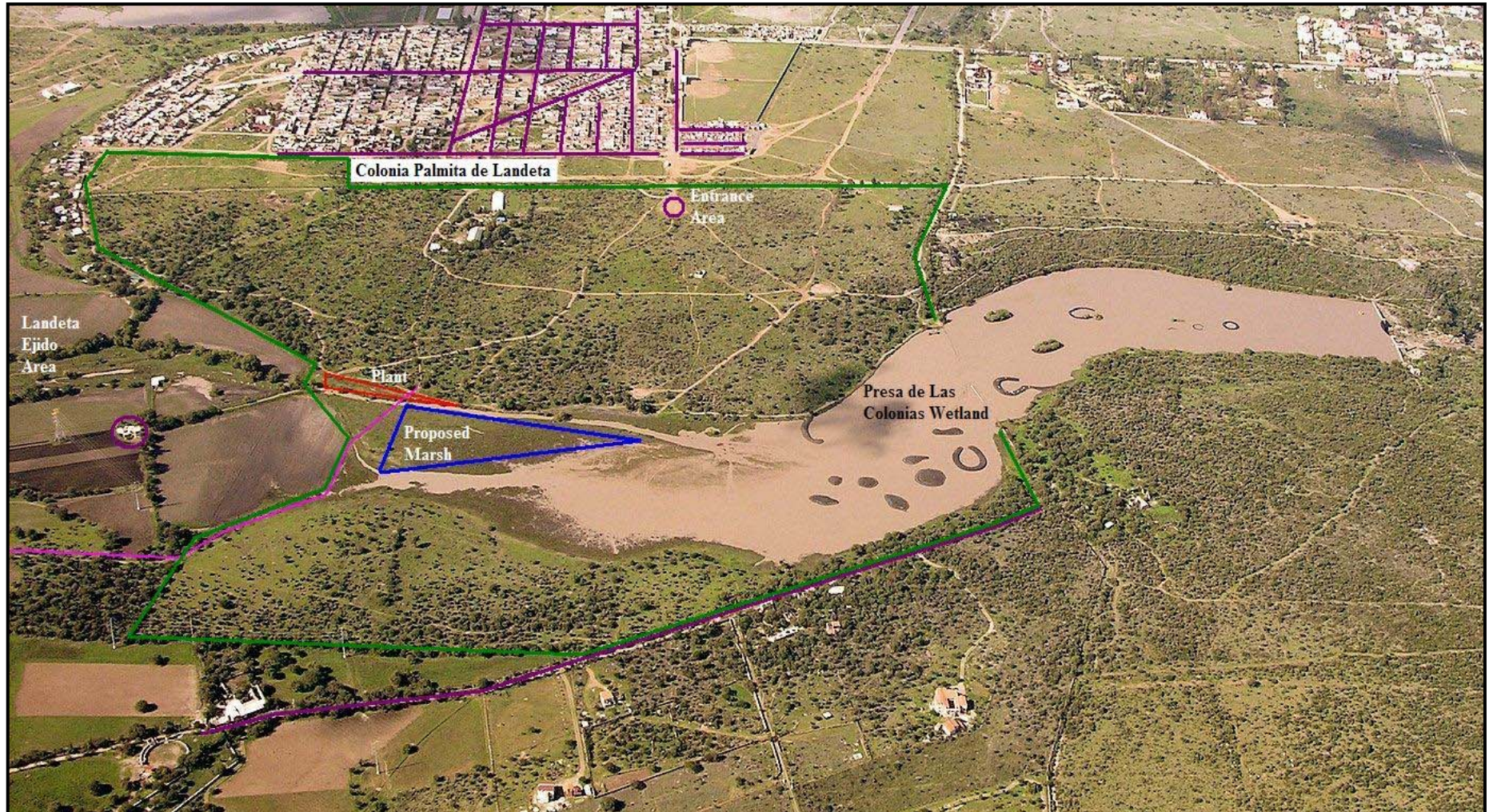


Figure 6. Survey areas and Parque Landeta- existing and proposed developments

Wetland Site Data Collection

The following methods were utilized to gather qualitative and quantitative data directly related to the Presa de Las Colonias wetland and future constructed wetland:

- Photographic documentation of the site
- Structured and unstructured interviews of local stakeholder organizations and community members from the Parque Landeta area; delineation of wetland site through visual appraisal and using oral histories from El Charco del Ingenio staff
- Documents and quantitative data collected pertaining to the wetland and park from scientific experts and local community stakeholders
- Visitation of a constructed wetland reference site in the town of Santa Catarina to observe the functioning condition of their treatment facilities; informal interview with the local public water authority to collect qualitative and quantitative data pertaining to the treatment plant and population served

These methods allowed for the delineation of the wetland, assessment of upstream land uses that may jeopardize the sustainability of the site and to perform geographical and hydrological analyses. The scientific documents provided by regional and local professionals were used to evaluate the current health of the watershed area and for the author to become familiar with local watershed dynamics. Visitation of the constructed wetland water treatment facility in Santa Catarina provided the author and active stakeholders with critical information that can be used to predict future outcomes once a similar plant is constructed in Parque Landeta.

Materials Used:

Site Specific Photography- Land and Aerial Photographs

Computer- Internet research materials and geographic information from INEGI (2000)

IV. RESULTS

Research Challenges

Many populations were surveyed for this professional project including elementary school children, native residents of Colonia Palmita de Landeta, Parque Landeta visitors, high school students and stakeholder organizations' staff and board members.

Challenges are often encountered during the process of qualitative data collection. The author detected language barriers during the interviews in Spanish with active stakeholder organizations (the majority of representatives spoke English). Spanish speaking interviews were audio recorded, but the interview process was still challenging at times. Cultural barriers or misunderstandings occurred at some points during the interviews. The author perceived that the "correct" or "politically correct" responses were being given by the subjects for some questions that could have been misunderstood. Perhaps the individuals were not accustomed to analyzing their own community to answer a foreigner's research questions or normally during public meetings they are concerned about the integrity and perception of their organization and therefore give formal or politically appropriate responses. However overall the interviews with active stakeholders proceeded smoothly and were informative.

The residential and visitor interview process over the three weekend sessions was challenging in terms of organizing the 12 "high-risk" high school students (16-19 year olds beginning secondary education again in the ninth grade), 3 facilitators and an occasional volunteer. The convenience sampling methods, safety precautions and proper interview etiquette were instructed each session. Following student instruction, the teams

were sent out to designated Colonia Palmita de Landeta streets and neighborhoods unsupervised. Facilitators were present in the field in case students had questions about interviewing protocol or if they had safety concerns. Despite the presence of facilitators in the field and training, challenges were encountered and are outlined as follows:

VISITOR SURVEYING CHALLENGES:

- Personal profiles such as sex and age were often not recorded
- Questions were sometimes accidentally skipped
- Many people who pass through the park are residents rushing to work and not there for leisure, thus many surveys were rushed
- Author's Spanish interpretation and translation mistakes
- During the first two sessions, interviews took place in the large park area, which made it difficult to reach all visitors in a timely manner, and consequently once the interviewing was moved to the parking lot entrance it is possible that local residents entering from the northern side of the park were not observed
- Numerous visitors were exercising (biking or running) and wished not to be disturbed for surveying, therefore the surveys collected do not represent the larger group of visitors observed
- There were days with few visitors, so each visitor was interviewed minus the runners and bicyclists
- Visitors were less open or communicative when surveyed by a foreign interviewer, versus a native Mexican

RESIDENT SURVEYING CHALLENGES:

- Personal profiles such as sex and age were sometimes not recorded
- Questions were occasionally accidentally skipped
- Subjects appear nervous at the beginning of the survey and typically had lengthier responses towards the end of the interview due to comfort
- Perceived reluctance to respond to participation questions because of feared future obligation to participate in the park and wetland projects
- Some individuals appeared to be uncomfortable when asked to list plant, animal or bird species in their zone and treated it as a serious test of knowledge
- Author's Spanish interpretation and translation mistakes
- Residents appeared more open and communicative when surveyed by a native Mexican versus a foreigner
- Unsupervised students surveying residents may not have followed a 2-4-6 pattern when choosing homes to interview
- Students were occasionally observed leading the subjects by giving examples of possible responses such as park services
- During one weekend surveying session, a large open-air market was taking place in the Colonia, thus many people were not in their residences

Identified Stakeholders

The first step in the planning and design phases of water resource management is the identification of local and regional stakeholders. This process is critical for future problem identification and decision-making prior to project development. The Ramsar Convention defines the term stakeholder as it applies to wetland resources in the following quotation, “Stakeholders are taken to be bearers of separate interests and/or contributions for the management of a wetland, with a particular focus on interest groups within local and indigenous communities and the government agencies responsible for wetland management” (Ramsar Convention Bureau, 1999:4).

Numerous stakeholders have been identified as having a current or future interest in the wetland projects and park development proposed at Parque Landeta. For the purpose of this project, the stakeholders identified for this particular project were divided into 7 categories: local stakeholder organizations, remote stakeholder organizations, local user communities of wetland and park resources, remote users of the park and resources, commercial indirect users, government agencies, and other community interest groups.

The community stakeholders were identified through a process of personal observation during meetings and structured and unstructured interviews with members of active stakeholder organizations and government agencies. The results are presented in Table 2 on the following page. The current level of each group’s participation is indicated by color. The level of participation (active, semi-active, inactive) was determined by observing attendance at formal and informal planning sessions and the level of involvement during the planning and design phases of the park and wetland.

Local Community Organizations	Remote Organizations	Local Community Users	Remote Community Users	Government Agencies	Commercial Direct or Indirect Users	Other Community Interest Groups
Botanical Gardens, El Charco del Ingenio- environmental conservation and preservation	San Luis de La Paz Herpetarium– reptile protection and education	San Miguel de Allende Residents- recreation	Foreign tourists- recreation	Municipal Department of Environment & Ecology	Downstream agricultural industry- irrigation	Instituto Tecnologia de Universidad de Guanajuato- student participation
Sociedad Audubon de Mexico- bird organization	<i>Audubon Society International- avian migration</i>	Colonia Palmita de Landeta Residents- recreation	Regional and National Mexican tourists- recreation	State Water Commission- water treatment plant design	Upstream agricultural industry- water use and agrochemical- fertilizer discharge	Local high schools and elementary schools
Systema de Agua Potable y Alcantarillado (SAPASMA)- local water authority		Local Residents- Nopales cactus fruit harvesting	State of Jalisco- Lake Chapala water users	Federal Water Commission- federal water rights & water capture	Botanical Gardens, El Charco del Ingenio- water use, aesthetics use	Local church groups of all denominations
Centro para los Adolescentes de San Miguel de Allende (CASA)- women/children’s health organization		Rancho Amistad Residents- transportation through park and recreation		City Council of San Miguel de Allende- determines project city funding	Upstream wastewater collection and treatment facility- domestic wastewater discharge	
La Fundacion de Apoyo Infantil Guanajuato (FAI)- children’s rights advocacy		Presa de Allende- downstream boat recreation, fishing				
Save the Laja- watershed restoration		Ejido de Landeta- agricultural water users				
Sports & Recreation Commission- sports		Local herding family- 30 sheep watering/grazing				
Professional College of Architects- volunteer architects		Horse grazing- local families bring horses to park				
Rotary Club/Joel King- skate park proposal		<div>COLOR KEY</div> <div><div></div>Active</div> <div><div></div>Semi-Active</div> <div><div></div>Inactive</div>				
Amigos de Animales- dog & cat protection & neutering						
Local Hiking Groups- various						

Table 2. Identified stakeholders in the Parque Landeta project and current levels of participation

Thirty-four stakeholders were identified, however only five groups are active in the planning process for Parque Landeta and the wetland. Representatives from the municipal Department of Environment and Ecology and a handful of non-governmental organizations consistently attended reunions during the months that research and interviews were being performed. The majority of literature pertaining to community involvement clearly expresses the need for stakeholder outreach and “to make specific efforts to encourage active and informed participation of local and indigenous people at Ramsar sites or other wetlands and their catchments, and their direct involvement through appropriate mechanisms, in wetland management” (Ramsar Convention Bureau, 1999:1). As of the date of the author’s completion of research the Parque Landeta planning group had not extended invitations to the inactive stakeholders presented in Table 2.

The active and semi-active stakeholders that have attended the Parque Landeta planning reunions have expressed their own concerns about the planning process as well as the lack of representation from local impacted communities. However, it was observed that the response to this concern during planning sessions was that CASA and FAI have been invited to participate in order to represent these high-risk, low-income neighborhoods because of their background and familiarity with the surrounding colonias. The assumption has already been made that these social organizations will perform community outreach and create educational programs related to the park and environmental services. Unfortunately, CASA and FAI have expressed that their budgets are drastically shrinking and that their participation in the park project is at risk. One of the CASA directors stated that Parque Landeta is an “extra” project for their organization and funding will most likely not be received in order for their staff to directly participate

(Salas, 2005). FAI's environmental education coordinator is only allowed 3 paid hours a week to dedicate towards the Parque Landeta project. Therefore, the community involvement and investment is at risk by strictly relying on under-funded social organizations that may or may not be participants in the near future.

While there is an immediate danger of losing stakeholder participation because of current funding questions, there still exists a mechanism for stakeholders to present their views and organize. Each of the organizations expressed their satisfaction with the diverse backgrounds of participants and organizations. Planning sessions for the park and wetland typically included representatives from recreation, social, school and environmental organizations in addition to City representation. However, the obstacle that has surfaced with such diversity is that roles and responsibilities of each group have not been identified or agreed upon. This lack of transparency during planning sessions may lead to less commitment and participation on the part of non-government organizations with numerous active projects.

Active Stakeholder Perceptions and Needs

Clear expectations, perceived benefits, flexibility, trust and ownership are necessary elements for the successful co-management of natural resources. Structured and unstructured interviews with staff and board members of the five actively participating organizations indicated that many of these key elements are lacking. The necessary factors associated with successful stakeholder planning and management are the presented on the following page.

- ✓ All stakeholders have been identified and invited to participate from the early onset of the project
 - ✓ Root causes of natural resource management and socioeconomic problems have been identified
 - ✓ Stakeholders share authority and responsibility
 - ✓ There is a mutual understanding of expectations and responsibilities
 - ✓ Knowledge and information is freely exchanged and there exists a mechanism for communication
 - ✓ Trust exists among stakeholders and government officials
 - ✓ Stakeholders benefit from taking on responsibilities in the project
 - ✓ Funding sources for the project have been identified and agreed upon
 - ✓ Sustainable resource management is the ultimate goal
- (Claridge and O’Callaghan, 1997)

The first criterion, stakeholder identification and participation, has not been achieved by the planning committee. During interviews, each of the active stakeholders and government officials were able to identify other groups and communities that have probable interests in the project but who have not yet been invited to participate. The Department of Environment and Ecology Director, Gerardo Arteaga, suggested that while these other groups such as schools and churches should participate in the future, the timing is not right at the moment because the project is still in its planning phase. He believes that when there are actual activities to be performed, such as vegetation planting or monitoring of the wetland site, inactive community players must be involved so that they feel a sense of ownership in the project (Arteaga, 2005).

Other active stakeholders have stated during interviews that they are satisfied with the groups currently involved in the project because they are the oldest and most active in the San Miguel community. There has also been stated concern that when the Parque Landeta project receives public attention, numerous organizations will want to participate, which will “impede” the current planning process (King, 2005).

The root causes of natural resource management and socioeconomic problems have almost totally been neglected during this particular planning process. Over a year ago, an employee of El Charco de Ingenio attempted to identify Parque Landeta problems, solutions and local organizations responsible for remedying the issues. However, this list does not identify root causes of problems and has not been discussed or followed-up on during committee meetings. Examples of identified problems within the park are: that the entrance is full of garbage, people graze their horses, and grass fires occur during the dry seasons. The outlined solution is to teach the local population about the environmental significance and importance of the park area, with the responsible organization being FAI. However, FAI has not included this in their proposal for participation as being on of their responsibilities. In addition, a number of the stakeholders are concerned about upstream land use practices and riparian area erosion rates. The causes and solutions for this significant problem have not been formally addressed or investigated, which will most likely lead to issues of sustainability for the restored wetland resources in the future.

Another key element during the planning, implementation and monitoring stages of water projects is that stakeholders share authority and responsibility. In the case of Parque Landeta, some stakeholders are more active and have taken on more responsibilities than others, and only two organizations have prepared concrete proposals for their participation in the project. CASA and FAI, the two social organizations, have taken on few responsibilities because of limited funding and staff. Only two organizations, namely Sociedad Audubon and El Charco del Ingenio, have assumed many of the responsibilities, which have included meetings with City and State water

authorities, visitation of reference wetland sites, and the editing of future board bylaws and budgets. While the other stakeholder organizations have regularly attended Parque Landeta meetings, they rarely participate in the planning process outside of meeting sessions.

There is also a lack of mutual understanding of expectations and responsibilities between active stakeholders. The City representative, Gerardo Arteaga, and the representative from Save the Laja, Robin Luxmoore, were the only individuals to claim they are aware of the expectations and responsibilities of the other stakeholder organizations. When asked during interviews, “Do you feel you have a good understanding of the intentions and proposals of the other organizations,” three of the five respondents strongly replied, “No”. Ironically, the two most active organizations, Audubon and El Charco del Ingenio, do not have project proposals that outline their organizations’ interests, plans and responsibilities, whereas both FAI and CASA have proposals that were created over a year ago and may now be outdated.

Knowledge and information have been exchanged during the Parque Landeta planning sessions, which is the only existing mechanism for communication between active stakeholders, but which are often canceled without notification. When the groups’ representatives were asked, “Whose responsibility is it to inform you about recent advances or information about the project,” responses varied. Some groups felt it was Gerardo Arteaga’s responsibility because the park is City owned and managed, while others felt Cesar Arias of Charco del Ingenio provides them with the most current information. Irma Salas from CASA replied, “When people say Parque Landeta, I think Cesar Arias, but I don’t know if that is correct” (Salas, 2005). When the Audubon

Director, Mario Hernandez, was asked the same question he replied, “I am informing myself, and I try to share the information to create a discussion [between groups]... definitely Cesar has been dominating the sessions, they treat him like a guru” (Hernandez, 2005). At first, Save the Laja’s Robin Luxmoore suggested Cesar Arias was responsible for distributing information, but later backtracked stating, “I’m afraid to say it, but probably Audubon, or FAI... you can’t trust Gerado Arteaga to do it, he is a busy man and I would bypass him” (Luxmoore, 2005a). Clearly there is a critical amount of confusion about who has the most up-to-date information, who should be distributing information and whether or it is necessary to distribute, and who should initiate group discussion or provide leadership. Mario Hernandez with the Audubon suggested during interview that it is the responsibility of every stakeholder to pass along new information as it surfaces and begin conversation, even if some organizations receive more information to share than do others. It is important that both the social and environmental organizations have accurate and current information pertaining to each other’s goals to use for decision making (Hernandez, 2005).

Nevertheless, trust among stakeholders and government officials is relatively high in the stakeholder planning process for Parque Landeta. The organizations and City have expressed their respect for each other during interviews. Most of the groups feel that while the planning process has taken years and many promises have fallen through the cracks, they still appreciate each other’s missions and dedication levels. Robin Luxmoore stated, “It is a good group of people that respect each other... representing their own interests, and of course Cesar is a dedicated person” (Luxmoore, 2005a). Alexa Fullerton, a former board member of FAI, expressed her feeling that the

stakeholders participating in the Parque Landeta project are not “hand-me-out” groups handing out free food or materials, and are well respected by the City’s officials because they are actively improving the area. Unfortunately, this high level of trust or respect has resulted in a reliance on City and El Charco del Ingenio directors and staff. CASA staff suggested during the formal interview that they trust Cesar Arias and Gerardo Arteaga and the other environmental NGO’s to make wetland and natural resource decisions, which is why they have not been regularly attending Parque Landeta meetings (Salas, 2005).

Stakeholders must feel that they have incentives or will derive benefits from taking on responsibilities in the Parque Landeta project. Clearly El Charco del Ingenio will benefit from Parque Landeta developments and wetland restoration projects because their property lies adjacent to the park and any improvements in land management and water quality and quantity will positively affect their business. The Sociedad Audubon has incentive to participate because the proposed enhancement of the wetland will create additional bird habitat. FAI will have an additional site for their environmental education programs, and Joel King will have secured a location for the proposed skate park facility. The municipal Department of Environment and Ecology will receive another notch on its belt for having restored a valuable wetland resource and for the protection and development of a community “green area”. Save the Laja and CASA, on the other hand, have not identified clear benefits from project participation. Irma Salas with CASA suggested that women’s and children’s health are tied to environmental and water resources health, and that a neighborhood teen-theater program would tie in this connection. However, their benefits are indirect and intangible, unlike immediate habitat

introduction or water quality improvements. Save the Laja staff are reluctant to become involved in the Parque Landeta project because they believe their current downstream watershed-wetland projects will receive more praise and future grant money than smaller stream restoration projects at the Landeta site.

Funding sources for the project have been identified by the active stakeholders but not necessarily agreed upon. The participating stakeholders agree that the sustainability of the park and wetland lies in the confidence in funding sources. The organizations each agree that the primary source of funding should be from the municipality because the park is in fact a municipal territory. However, just as politics and administrations change over the years, government funds will as well.

Gerardo Arteaga stressed during interviews that the Landeta project must be attractive to future private investors, which implies that a framework and specific conditions must be outlined for the park's protection and for investors' security. Yet, El Charco del Ingenio staff are weary of private funding, and would rather rely on City, State and Federal funding sources for the maintenance of the park, infrastructure development, and payroll. The organizations fear that private investors will demand advertising within the park.

However, as long as there is disagreement about permitted funding sources, the park development and wetland restoration/treatment plant will remain on hold. Gerardo Arteaga made it clear that he is reluctant to "sell our souls to the devil", meaning corporate sponsorship, but just months ago (January 2006) the two million pesos for Parque Landeta promised for the new year by the San Miguel Mayor was never even presented to the City Council for appropriation.

Sustainable resource management is certainly the ultimate goal, but is so often forgotten during the scramble for funds, participation, and political acceptance. Discussion of whether or not any of the developments or activities proposed for the park area will be sustainable rarely occurs during planning sessions. For example, Audubon Director, Mario Hernandez invited stakeholders to visit a “reference” constructed wetland treatment site in Santa Catarina because of serious concerns for the ecological and hydrological functioning capabilities. The Santa Catarina water treatment system design is the same as for the proposed Parque Landeta site, but not a single stakeholder accompanied Hernandez to observe the Santa Catarina treatment plant or to discuss sustainability issues with local water authorities. Yet, the majority of stakeholders interviewed expressed their concerns for the wetland and future water quality issues resulting from the proposed treatment plant. The Parque Landeta planning committee (which will become the future board of directors for the park) also has not initiated any baseline studies for future monitoring and maintenance purposes. Sustainable resources management is a challenge for every project, but with forethought the tools will be in place to manage unavoidable obstacles during water resource management.

Results- Community Interviews and Workshops

Community Knowledge of Wetland and Environmental Services

The first step in assessing the community’s knowledge of environmental and wetland services is to evaluate their perception of the overall environmental health of their area. The Colonia Palmita de Landeta residents and Parque Landeta visitors were asked questions pertaining to their perception of environmental quality in San Miguel de Allende. Inadvertently on the part of the facilitators designing the surveys, the questions

differed slightly between the park visitor and resident populations surveyed; the visitors were asked, “What is your opinion of the environment in San Miguel de Allende?” The question for the residents was phrased, “What do you think should be done to improve the environment in San Miguel de Allende?” The first question inquired whether there are perceived problems with the environment, while the second implies that there are problems and that solutions exist. While the responses to the local environmental quality questions can not be directly compared, identified problems and solutions may be analyzed in Table 3 below.

Perceived Local Environmental Problems	Perceived Local Environmental Solutions
no problems (12)	garbage control (37)
general contamination (8)	vegetation management (13)
water shortage (2)	more green areas (4)
garbage (2)	care for the environment (4)
few nature preserves (1)	recycle (4)
not enough vegetation (1)	no problems (2)
population increasing (1)	pave the streets (2)
unplanned development (1)	everyone cooperate (2)
fires (1)	reduce vehicle contamination (2)
	guard water (1)
	help with ecology (1)
	maintenance (1)
	medians in front of homes (1)
	more employment (1)
	no graffiti (1)
	reduce street cigarette butts (1)
	dog feces control (1)
	educate children (1)
	security (1)
	urban boundary control (1)
(x)= number of replies	

Table 3. Perceived environmental problems and solutions for San Miguel

The most common response to the park visitor survey question was that there are no serious environmental problems in San Miguel. However, the majority of residents, when asked what should be done to improve the environment in San Miguel, responded that people should not throw garbage into the streets and that the city and streets should be cleaned up. Currently in Mexico there is a national campaign to reduce garbage

pollution in the cities and highways, with frequent advertisements on the television and gigantic billboards along the sides of highways. The entire nation is being told that garbage pollution is wrong and that everyone should help in the effort to reduce this unsightly litter. Perhaps the residents believe that litter and garbage reduction is the best environmental quality solution in their area because of the large national campaign efforts, and garbage reduction is simply the first solution that comes to mind.

Visitors, on the other hand, identified water and air contamination as the number one problem in the San Miguel area behind “no problems” with the environment. The subjects interviewed in the park often interpreted the question pertaining to the local environment to mean the park area specifically, which could possibly be a reason for the “no problems” responses. A number of visitors suggested that they appreciate the abundance of natural preserves, parks and green areas in San Miguel. Thus, it was observed that visitors found “no problems” with the natural environment in which they were interviewed, while residents identified numerous solutions to numerous perceived environmental problems in San Miguel. It is also important to note that “more employment”, “paved streets” and “medians in front of homes” were listed as environmental solutions by Colonia residents. The streets of the San Miguel urban areas are paved or have cobblestones, some streets have medians, and the employment rate is high compared to Colonia Palmita de Landeta. Therefore, it is possible that the people of the Colonia want their neighborhoods to mirror those of the San Miguel urban environment with improved socioeconomic standards.

Knowledge of wetlands and their services differed between park visitors and residents, as well as between individuals who frequent the park area and those who do

not. Results were broken down into frequency of park visitation categories, 0 being no visitation and 3 being the highest frequency of visitation (11+ visits during 2005). Those people interviewed within the park, as well as those residents and visitors who are frequently 3 in visitation were perceived by the author as being more familiar with wetland and environmental services.

When asked the question, “What is a wetland?” 19.3% of the residents could answer the question, while 33.3% of students and a high 52.6% of visitors affirmed that they could identify a wetland area. These results are not statistically significant because the study performed was not a random sample. However, there are observed characteristics of those residents who know what a wetland resource is and who also correctly listed examples of wetland services. These individuals frequently visit Parque Landeta and other natural areas including the Botanical Gardens of El Charco del Ingenio, and they have an extensive, overall knowledge of environmental services such as plant, animal and bird populations in their zone.

The same pattern was identified when reviewing visitor responses to the wetland services question. Individuals who were aware of wetlands and their biological and socioeconomic services could also list numerous plant, animal and bird species and had the highest frequency of park visitation. The author observed that the lists of wetland services varied between residents and visitors. While residents listed direct human uses of wetlands services such as “irrigation”, “day in the countryside with family”, and “for your exploitation”. Visitors listed more biological and hydrological services of wetlands, such as “erosion control”, “habitat”, “fish”, and “thermal waters”. Many subjects in these three groups during interview simply pointed in the direction of the Presa de Las

Colonias, signaling that they knew that a local wetland resource existed, even if the actual services were unknown.

The author noted a distinct relationship between park visitation and the knowledge of wetland and environmental services. Interviewed visitors, residents and students with the highest frequency of visitation were observed by survey teams as having more information and knowledge pertaining to the natural environment than residents and students with low or no frequency of park visitation. The animal and bird results may be partially inaccurate because residents and students tended to list domestic animals such as dogs, parakeets and rats rather than wild animals. Visitors tended to list wild animals and birds, so their data is a more accurate portrayal of knowledge of environmental services.

Parque Landeta Perceptions, Ideas, and Needs

Perhaps the most interesting observation made during the surveying process was that many of the residents had never visited Parque Landeta, or had no idea of the park location even though the park entrance was visible from their front doors. The data shows that 40 percent of the residents surveyed had never heard of the nearby park, five residents had heard of the park but did not know the location, and seven individuals claimed they had heard of the park but never visited. The student surveying teams and facilitators attempted to hypothesize the cause of the odd observation. The following probable causes are based on qualitative data and surveyors' observations: the residents actually consider the entire area to be part of the El Charco del Ingenio property and do not realize the park is its own entity, they confuse Parque Landeta with the other neighborhood recreation area named "Manuel J. Clouthier", or like many of the residents

in Colonia Palmita de Landeta they only recently moved into the neighborhood and are still unaware of local amenities like parks.

The recreation area, “Parque Recreativo Deportivo Manuel J. Clouthier”, located in the eastern portion of Colonia Palmita de Landeta has many of the recreational facilities proposed for Parque Landeta, including basketball courts and soccer fields. A small reservoir that has become a wetland area with avian habitat is also located within this park. While three gardeners are employed to care for the park, there are no security guards or naturalists to assist visitors. Reference was made to this sports park when residents were asked the location of Parque Landeta. Many people thought surveyors were asking about the park shown in Photograph 4.



Photograph 4. Parque Recreativo Deportivo Manuel J. Clouthier

It quickly became evident that the groups surveyed for this project have conflicting ideas and suggestions for the future Parque Landeta area. Numerous residents and visitors, primarily Mexican male subjects, suggested that “canchas” or game areas

like basketball courts would be ideal, similar to the nearby amenities at Parque Recreativo Deportivo Manuel J. Clouthier above.

Every one of the foreign visitors surveyed at Parque Landeta was strong in his or her opinion that the park should either remain rustic or become a natural preservation area for the city. These foreign residents and tourists were disappointed to hear that the upland areas of the park could soon be developed with sports and recreational activities. One elderly woman who originated from the United States exclaimed upon hearing of the proposed park plans, “I love it here because there are *no buildings*... don’t *f*... up my park...everyone is improving everything in Mexico...it [Parque Landeta] belongs to the Mexicans and the Mexicans use it!”

While this woman’s bold statements reflect the foreigners’ aim to the preserve natural area, many of the interviewed foreign subjects made comments like, “it’s the nature of Mexico, people break things,” and “we have books of birds and plants...I like things the most natural as possible”, or lastly “it’s a love-hate thing with Mexico... we won’t be coming here anymore [if the park developed]”. Not a single park visitor of foreign origin suggested that there should be game courts or playgrounds in the park.

Prior to analysis of the needs and ideas of the local community and visitors, it is important to first capture the current perception visitors, residents and students have of Parque Landeta. It was observed that foreign visitors had more gripes about the garbage in the park than local citizens. Children from Palmita de Landeta elementary school disliked the “dangerous” aspects of the park, such as star thistles, dry grasses, and rocks in the trails, but the youth often replied during written survey that they enjoy the natural attributes of the park, such as the birds, flowers and “little trees”. Table 4 shows the

student, resident and visitor survey responses to the questions, “What do you like about Parque Landeta? Dislike?”

Female visitors of the park such as the women from Rancho Amistad were especially concerned about the security and drug use within the park. One woman, who had never visited the park and did not know the location, was insistent about having park security, more than any other activity or development. Perhaps the reported high crime rates of the Colonia give way to an overall concern for families’ safety.

Positive Attributes of the Park	Negative Attributes of the Park
vegetation (11) everything (8) tranquility (6) clean (5) wetland (4) no development (3) wetland birds (3) close (2) environment (2) canyon below dam (2) few visitors (2) natural/green area (2) near to town (1) nursery (1) seasonal changes (1) space to play (1) dogs allowed (1) care for the animals (1) beauty (1) (x)=number of replies	nothing bad (11) garbage (6) drugs (4) wetland intermittent (3) dry grasses (3) danerous rocks in the paths (2) no trees (2) star thistle (2) dangerous animals (1) dangerous plants and insects (1) dead animal carcasses (1) dirty stream (1) dislike everything (1) loud music (1) no security (1) no small pathways (1) too hilly (1) used as bathroom (1)

Table 4. Perceived positive and negative attributes of Parque Landeta

The most common complaint about Parque Landeta from all groups was litter. One resident explained, “The green area is maltreated and not taken care of and lacking maintenance.” An observant eleven-year-old child noted, “I don’t like the lack of

security and the river is not clean.” However, the most common response to the negative attribute question was that there were *no problems* with the park. This coincides with the most common response to the question pertaining to positive attributes of the park, which was that subjects enjoyed everything about the park. Individuals especially enjoy the vegetation and tranquil attributes of the area. The presence of water in the wetland and wetland birds were also listed, primarily by elementary students. One visitor exclaimed, “I like the park when water is present in the reservoir.” A quotation reflecting the most common feeling of local Mexican visitors is, “It is a perfect area for family activities.” When residents and visitors were asked about activities they partake in within the park, most replied “dia del campo” or “a day in the country”. The majority of families that visit the area enjoy walking and sports in open spaces such as soccer and baseball. Within the park, on many occasions large groups were often observed having picnics at one of the rest/grill areas and playing games on the wide pathway by the reservoir.

Numerous ideas were listed by the subjects for the park and wetland area, with the most popular being “juegos para niño” or playgrounds, and “canchas”, which are sports fields or courts. Table 5 demonstrates the perceived trends that residents were most fond of the idea of having a playground for children, while students hope for sports areas, and the young children listed environmentally related ideas such as more vegetation, a pond area and wildlife.

	Residents	Visitors	Students	Children
Playground	57.9%	21.1%	33.3%	44.4%
Sports	28.1%	10.5%	66.7%	40.7%
Environment	19.3%	21.1%	0	25.9%

Table 5. Parque Landeta ideas and needs related to the natural environment and recreation

Not included in the table above are the high school students' ideas that surfaced during the formal workshop session. The twelve students came up with the following list: gymnasium, go carts, kayaks for reservoir, aquarium, clean bathrooms, restaurant, preservation of the grill areas, auditorium, skate park, preservation of the natural environment, and security (signs, personnel, fences). The students discussed the fact that pursuing the preservation of natural resources as well as recreational activities may be conflicting goals, which led them to the conclusion that security and maintenance are crucial.

A pattern observed by surveying teams was that the majority of residents surveyed were female and they tended to list "playground" or "area for children" more often than male subjects, visitors and even elementary age children from the Colonia. None of the residents responded that the park area should be preserved for environmental services, however the most common environmentally related park idea was "more vegetation". Other resident ideas included a conference facility, swimming pool, audio-visual displays for environmental education, and a gymnasium.

Subjects were also asked for ideas pertaining to services that they would like to see within the park. Many people could only think of one service, bathrooms, which is perhaps the most obvious and important. One woman exclaimed, "I would visit with my children if there were bathrooms and potable water". Of the residents, high school students and visitors surveyed (children were not asked about park services), 34 people requested "baños" (one person requested dry latrines), 23 suggested potable water, 12 wanted park lights, 8 would like to see security guards patrolling the area, and 6 people would like busses or transportation to and from the park. Although garbage was the

primary complaint, only five individuals suggested garbage cans should be placed throughout the park. It is also notable that two families from Rancho Amistad claimed that automotive transportation through the park is needed because their community has no direct access in order to transport large goods that cannot be carried by foot.

The fifty-five Rancho Amistad families use the park for walking to and from town and to catch buses that stop just outside the entrance to the park. The community is located only 10 minutes by foot from the upper park area. The residents from Rancho Amistad expressed concern during surveys that their access would be flooded or disrupted from the new treatment plant and marshland area. In addition to transportation, other uses of the park and its stocks of natural resources as identified by subjects include grazing of horses and sheep, nopal cactus fruit harvesting, garbage dumping, family excursion, exercise, and tree species experimentation. The surveyed visitors were able to identify more uses of the park than residents who visit the park.

Every group, minus the elementary students, was asked whether an entrance fee should be introduced at Parque Landeta following development. The Botanical Gardens of El Charco del Ingenio charge a fee of three dollars, which many of the visitors and residents mentioned discourages them from visiting the nearby gardens. Yet surprisingly, the residents who had never visited the park were observed to be most willing to pay for “the maintenance and security” of the park. One mother of three who had never visited Parque Landeta, when asked if there should be a fee replied, “Yes, because the park is for us.” On the other hand, another resident who also visits the botanical gardens to admire plant diversity responded to the fee question with, “No. It is for everyone. Everyone has the right to see it because it is the natural environment.” Along the same line of thought a

female resident replied, “They should not charge there because the people here are of few resources [monetary]”.

<u>Visitors</u>		<u>Residents</u>		<u>Students</u>	
yes	11	yes	32	yes	6
no	8	no	23	no	0
omitted	0	omitted	2	omitted	0
% yes	57.9%	% yes	58.2%	% yes	100.0%
avg pesos	\$4.05	avg pesos	\$3.68	avg pesos	\$10.00

Table 6. Willingness to pay park fees and average suggested amount

Nevertheless, the majority of subjects suggested that there should be a park fee for maintenance purposes, as presented in Table 6. The groups that were most opposed the fee were the Rancho Amistad families who daily cross through the park, the family who grazes its horses within the park, and American visitors.

Participation and Environmental Education

An interesting concern surfaced during the interview process. When residents and visitors were asked whether they would like to participate in the project they voiced their concern that they were making a commitment. One female resident exclaimed, “Is this a promise?” Thus, student survey teams were instructed to inform the subjects that they were not committing themselves to future participation in projects. The data collected before this obstacle was resolved may consequently not be representative of the true opinions of visitors and residents. Nevertheless, the following three questions were asked of residents and visitors:

- 1- “Would you like to participate in the development of Parque Landeta?”
- 2- “If yes, in what ways will you be able to participate in the project?”
- 3- *Residents*- “Do you think that the Colonia residents will participate in educational activities related to the environment?”

Visitors- “How interested are you in participating in environmental education activities in this zone: Very Interested? Interested? Somewhat interested? Not Interested?”

Results from these three questions were analyzed to find out if there are common characteristics of people or families who claimed they would be willing to participate or those who think that environmental education will be a viable program. There appears to be a relationship between the frequency of visitation and the willingness to participate, as represented in Table 7 below.

	*Freq 0	*Freq 1	*Freq 2	*Freq 3
Participation Yes	75.0%	87.5%	80.0%	82.1%
Participation No	25.0%	12.5%	20.0%	10.7%
Participation Undecided	0.0%	0.0%	0.0%	7.1%
Education Yes	71.9%	81.3%	100.0%	85.7%
Education No	18.8%	6.3%	0.0%	7.1%
Education Undecided	9.4%	12.5%	0.0%	7.1%
*Frequency 0 (0 times/yr)= 31 residents, 1 student, 0 visitors, Total 32				
Frequency 1 (2-4 times/yr)= 9 residents, 5 students, 2 visitors, Total 16				
Frequency 2 (5-10 times/yr)= 4 residents, 1 visitors, Total 5				
Frequency 3 (11+ times/yr)= 12 residents, 0 students, 16 visitors				

**Table 7.
Relationship
between
frequency of
visitation,
participation and
education**

Subjects who have never visited the park (frequency 0) are perceived to be less eager to participate in the Parque Landeta project, and almost 20% claimed that their community would be uninterested in environmental education activities. Individuals with higher frequencies of visitation are observed to be more interested in environmental education. The majority of people in the “Frequency 1” category visit the park only once a year for the annual Festividad de Santa Cruz in July. Results show that this group appears to be the most interested in participating. The subjects who only visit the park once a year for the festival were noted by the surveying teams as being very fond of the park with positive perceptions of the area.

It is also significant to note in Table 7 that residents either visit the park frequently or have never visited, with only 13 of 57 residents visiting 2-10 times a year. The most common response subjects gave who do not want to participate is “lack of time” due to job responsibilities or domestic duties. Those same people were observed to be timid or uninterested during the survey and also gave short replies for the other survey questions.

<u>Ideas- Visitors</u>	<u>Ideas- Residents</u>	<u>Ideas- Students</u>
security (3)	collect garbage (4)	plant vegetation (3)
care for the park (3)	plant trees (3)	population surveys (3)
employment (2)	anything needed (3)	services (1)
collect garbage (2)	care for the park (2)	visitation (1)
give opinions (2)	alleviate contamination (1)	construction (1)
helpful (1)	cooperation (1)	help people (1)
park proposals (1)	don't know (1)	move rocks (1)
organize youth (1)	helpful (1)	
plant vegetation (1)	make everyone comfortable (1)	
don't know (1)	move rocks (1)	
solicit donations (1)	participate (1)	
already work with Charco (1)	reward financially (1)	
	supportive (1)	
	survey population (1)	
	to be aware of development (1)	

Table 8. Personal ideas for participation

Table 8 shows the ways in which the students, residents and visitors would like to participate. A number of subjects had the same responses or ideas for participation. Table 8 demonstrates that there is a large variety of ways in which people who answered “yes” to participation wish to contribute to the project. Many subjects suggested that they would like to plant vegetation, pick-up trash, and care for the park in a more general sense. The majority of visitors who answered “yes” to participation also answered “very interested” or “interested” in environmental education. The author also observed that all

but one Rancho Amistad resident interviewed in the park (usually with family members helping to answer questions), are very enthusiastic about participating. It was clear during interviews that the most eager subjects could possibly represent their communities during the planning and implementation process for Parque Landeta and that these people have an abundance of knowledge about the human activities and natural resources within the park.

It was encouraging to discover that many residents feel that their Palmita de Landeta community would be interested in employment at the park. Of the 54 residents and 6 students asked, “In the future do you think Colonia residents would be interested in being employed at Parque Landeta?” 100% of the students and 89% of the residents replied “Yes.” When asked about their affirmation, the most common answers were, “Because we will see a benefit to the people of this zone,” or “It will serve everyone and it is close.” Other common responses were that park employment will benefit the park in terms of maintenance and security, many people in the Colonia are unemployed, and employment will benefit the children because they will have a place to play. One woman replied, “Yes, because we all have children.” The majority of subjects that replied “no” to the work question could not give reasons why they felt the way they did; they simply felt it was not a viable service. In addition to park employment (security guards, maintenance crews and guides), there are numerous small “tiendas” or neighborhood stores that could potentially profit from increased park visitation and traffic, although none of the respondents during surveys mentioned this possibility.

Gender and Youth Analysis- Constraints, Perceptions and Interests

The majority of residents interviewed were female and all over the age of twelve, with most of the women being over the age of 18. Many of the female residents were interviewed in the presence of their children, and at other times whole families were present during surveys and everyone participated during question responses. Detailed observations were made and notes taken by the student surveying teams and facilitators during residential and visitor interviews. Student teams attempted to note the age and sex of each subject, as well as their behaviors and attitudes during discussion.

Students and facilitators observed that many women were passive, shy or indifferent during interviews. Consequently, many of the surveys contained brief, simple, one-word answers to questions. One student team recorded, “She was very short in her responses and in reality she knew nothing about the place.” Females were also often answering questions with responses like, “Whatever they need” and “I am not sure” or “I don’t know”. One woman approximately 22 years old whose family had resided in the neighborhood for twenty years was hiding behind a carefully cracked door during the interview. She gave one-word answers to questions and in a soft voice suggested that she did not know any of the names of local plants, animals or bird species in her zone and claimed she was too busy to participate in the park project.

On the other hand, it was observed that women, when interviewed in the presence of friends and family, were generally more comfortable, forward and enthusiastic in their responses. For example, three women and one male youth were interviewed together and the women thoroughly enjoyed answering the questions and engaged in group discussion about the park, its resources and future developments. These women walk and exercise

in the park weekly and were eager to share their abundance of information about plants, birds and wetland services. With regard to enthusiasm, a student noted in his observations that, “The woman responded with positive energy and is interested in participating in the park.”

A number of women were perceived to be busy during interviews with domestic activities including tending to young children or elderly parents, or they were occupied with customers in their small household shops. A student surveyor noted, “The woman is not able to participate because she and her husband both work, but she is interested in the development of the park.” Women who claimed they were too busy in their daily lives to participate were not necessarily unenthusiastic about the park. In fact, many female subjects suggested that their mode of participation would be “visitation” or “support”.

Human services organizations throughout the State of Guanajuato that are attempting to develop progressive programs for women and children have run into a large, growing obstacle (Hernandez, 2005). Many women must seek permission from their husbands who are living in the United States to participate in community activities, especially those facilitated by humanitarian-social organizations. Often times men are “suspicious” of these women’s or community organizations and do not grant their wives permission (Hernandez, 2005). This became evident during interviews with women in Colonia Palmita de Landeta. One woman, when asked whether she would like to participate, replied “Yes”, but when asked how she would like to be involved said, “I don’t know, if my husband gives me permission.” As mentioned in Chapter II, social organizations in the San Miguel municipality believe that Colonia Palmita de Landeta has

one of the highest rates of male migration to the U.S. If correct, this could significantly influence the female and family participation levels for the Parque Landeta project.

The majority of women surveyed expressed their interests in having a local playground for children. While many men mentioned that sports infrastructure such as basketball courts, a skate park and soccer field would be ideal, most women did not. The qualitative data shows that women would like to see a playground built in the park, high security for park maintenance and safety, and vegetation management for shade and visual qualities. Men were also more likely to request busses or transportation as a “park service” whereas women more frequently listed services such as bathrooms and water. Lastly, it was observed that women and children were more concerned about security than men and answered “security” to many survey questions. When asked, “What do you not like about the park?” women answered “no security”. When asked “What ideas do you have for the park?” some women responded “Security”, and when questioned whether there should be a park fee, a few women responded, “Yes, for security and maintenance.” Some of the women living near the other neighborhood park, Recreativo Deportivo Manuel J. Clouthier, were clear in stating that it lacked security forces although it had a gardening staff.

Children were observed to be enthusiastic about helping their mothers answer survey questions when they were fortunately present. They held a wealth of information when asked about plants, animals and birds living within their zone. Often the children were able to provide more information than their mothers or parents about Parque Landeta with respect to park activities. The Palmita de Landeta elementary school children who were given written surveys demonstrated through their comments their

great familiarity with the park and the local environment. One girl wrote, “I am proud of the park and how pretty it is.”

Most children noted details about the park that they wished to eliminate, such as poor water quality, dry grasses, bees, spiky trees, and rocks. Children also noted birds and wetland attributes such as duck habitat. Adults, female and male, were not as specific as the children in describing their perceptions and ideas for Parque Landeta. Children were also strikingly honest in their written responses, which was helpful in assessing perceptions of the area. One student suggested, “The park is very pretty how it is now,” while other children wrote, “It doesn’t even look like a park right now,” or “The park is very ugly.”

Summary of Results

The analysis of results from residential, student and visitor surveys and active stakeholder interviews allows for a clear picture of the stakes each one of the groups has in the Parque Landeta project. Their specific interests are directly related to their ideas for participation, which must be taken into consideration by the active stakeholder organizations and the City if they choose to invite the local colonias, students and visitors into the planning, development and monitoring phases of the project. The identified stakes of each interviewed stakeholder group are presented in the sub-sections to follow.

Rancho Amistad Residents

Rancho Amistad is a friendly agrarian community that the author observed to be extremely familiar with the park and water resources due to their frequency of visitation. The residents of Rancho Amistad have an immense stake in the Parque Landeta project because the community members must cross through the park in the proposed marshland

area on a daily basis. The majority of the interviewed Rancho Amistad residents were eager towards participating in the project because they are concerned that the pathway will be interrupted or the introduction of a park entrance fee may deter their necessary use of the park. Alternate walking routes exist, but the trail traversing Parque Landeta is the most direct and efficient. The community also enjoys recreation activities in the park, but not to the extent of the Palmita de Landeta residents.

Appropriate participatory mechanisms based on the characteristics and interests of Rancho Amistad residents include representation at stakeholder planning sessions, employment at the park and vegetation management. Most residents, male and female, were extremely enthusiastic when asked whether they would be interested in participating, and when combined with their familiarity with the park and wetland, it is reasonable to predict that their participation in planning sessions would be beneficial. In addition, activities related to vegetation management along trails would be appropriate because of the community's agrarian background and familiarity with plants and trail systems within the park.

Colonia Palmita de Landeta Residents

The obvious stake Palmita de Landeta residents have in the park project is the management of their designated community green space. The residents that frequent the park expressed their appreciation for the area because it serves as a “day in the countryside” for many families. Unfortunately the park also creates a local security issue, due to the prevalence of drug use and crime in their neighborhoods and within the park. These types of concerns are especially true for women and children who frequent

the park. The high-risk nature of this community requires extra consideration when developing appropriate mechanisms for residential involvement.

There are a variety of manners in which the residents of Palmita de Landeta expressed that they would like to participate. However, it is probable that they will be involved in more passive activities such as visitation, awareness, general support and education. Palmita de Landeta elementary school children will begin participating in environmental education programs implemented this year that will incorporate field education pertaining to birds, water and natural resources within Parque Landeta. Women of the colonia are interested in being involved through visitation with their children, support of the proposed projects, and becoming more aware of the park. Colonia Palmita de Landeta families consistently requested playgrounds for children and recreation facilities for adults and children. Thus, the men and their families could be involved in the design and construction of this infrastructure. Overall, their meaningful involvement in the project may be accomplished by acknowledging that the park is their community's green area.

Parque Landeta Visitors

The visitors of the park have many direct stakes in the development and restoration of the park and the wetland area. However, these stakeholders' benefits vary greatly due to differing visitor characteristics and demographics. The expatriate visitors hope that the park will become a nature preserve area. These stakeholders suggested that they will consider the project a success if environmental and wetland services are protected and augmented. Appropriate participatory activities for this group include

vegetation management, visitation, providing the active stakeholders with valuable input, and through environmental education activities.

The local Mexican visitors interviewed in the park area are quite familiar with the environmental and wetland services and appreciate the tranquil, day in the countryside aspects of the park. They expressed genuine interests in participatory activities and, in addition to Rancho Amistad, should be invited to represent the community during the planning sessions for the park. Their enthusiasm and ability to provide valuable input pertaining to the park resources should not be neglected by the active stakeholders. Moreover, the local Mexican community that visits the park, similar to the Palmita de Landeta residents, will discover a sense of ownership for the green area and they will benefit from improving an area for which they already hold value.

Local Students

The high school students who participated in the surveying of residents and visitors have expressed their interest in being involved in the park planning, development and monitoring phases. A result of their recent involvement is an expressed concern for the future of the park area and many students have begun visiting the park with more frequency after having been introduced. The high school students from the technology institute are required to perform community service every semester. Therefore, with help from an active stakeholder with biological, ecological and hydrological backgrounds, a monitoring program using appropriate indicators may be developed for future student initiated inventories of the park and wetland site. In addition, a number of the students wish to continue participating in activities related to social and cultural evaluations.

Active Stakeholders

Specific interests in the Parque Landeta project vary between the five organizations. However, it is clear from interviews that their involvement is directly related to their organizations' mission statements and overall goals. CASA and FAI are interested in the park project because of the potential benefits for women and children in the high-risk colonias, as well as the introduction of community environmental education programs at the park. The environmental organizations, namely the Audubon Society, El Charco del Ingenio and Save the Laja, view the Parque Landeta project as an opportunity to improve the health of the local wetland resources, which coincides with their overall mission to restore the Rio Laja watershed.

In addition to participating in planning meetings and creating project proposals, many of the active stakeholder groups' board members, directors and staff have explained during interviews that they would like to be involved in the monitoring of the wetland site or the evaluation of park use. These active stakeholders' staff and board members tend to have professional social science or environmental science backgrounds and already frequent Parque Landeta for volunteer surveying or recreational purposes. Monitoring of the site will be an enjoyable form of participation for these stakeholders as well as promoting the sustainability of the wetland projects.

V. ANALYSIS OF RESULTS AND DISCUSSION

Community Responsibility and Empowerment

While various forms of stakeholder participation may be introduced during this current planning phase of Parque Landeta, they must be relevant to each of the stakeholder groups. It is also critical to “have the community see the park as their own” (Hernandez, 2005). Irma Salas from CASA reiterated this view stating, “ People will see it as their own project, especially if it developed as the Colonia’s very own green space”(Salas, 2005). Colonias surrounding San Miguel are each supposed to have, according to municipal policy, their very own community green space, which has been observed to instill a sense of pride and responsibility in those neighborhoods (Salas, 2005). A portion of Parque Landeta was originally designated the Palmita de Landeta green space, but was never pursued or publicized by the Department of Environment and Ecology.

The authors of the book *Power, Process and Participation* define empowerment as, “A process through which individuals, as well as local groups and communities, identify and shape their lives and the kind of society in which they live... Empowerment means that people are able to organize and influence change on the basis of their access to knowledge, to political processes and to financial, social, and natural resources” (Slocum, *et al.*, 1995:4). This chapter will analyze research results and discuss the necessary elements for sustainable community participation and empowerment during the planning, development and monitoring phases of the proposed constructed wetland wastewater treatment plant and the overall Parque Landeta project.

Network of Stakeholders- Parque Landeta Board of Directors & Staff

The majority of actively participating stakeholders interviewed for this project proclaimed their approval of the groups involved and their dedication. The two significant concerns that may inevitably deter future participation from active and inactive stakeholders are the cancellations of planning meetings, which adds an element of unpredictability, and the absence of concrete proposals for participation, which leads to a lack of responsibility. If the future Parque Landeta board of directors, which has representatives from each of the participating groups, resolves these two issues through predictable meeting times and group proposals, the following results may be observed:

- 1-perceived benefits from project participation
- 2-level of overall organization increased
- 3-information transfers
- 4-trust among stakeholders
- 5-the sustainable management of natural resources
- 6-timely project results and progress
- 7-increased levels of individuals' leadership and empowerment

These results will potentially lead to heightened stakeholder participation and promote the retention of current participants. In order to attract additional stakeholders to meetings the project must be brought to the public to increase awareness.

Despite disagreement, the participating stakeholders have fortunately decided to hire a director with a strong social science background in order to pursue the participation and support from the surrounding colonias and users of the park. This community relationship will be beneficial for the sustainability of the project, and stronger local ties

with locally respected social organizations such as FAI and CASA will develop, creating the potential for outreach activities and communication between active stakeholders and colonia stakeholders.

Financial Responsibilities of Participating Stakeholders

Robin Luxmoore with Save the Laja, when asked what the biggest challenge for the sustainability of the park stated, “Getting enough money to keep the thing going and maintaining it and to pay the personnel... that is the biggest problem in Mexico” (Luxmoore, 2005a). The new Parque Landeta organization will be non-profit and will be seeking funding just like the 50+ other organizations located in San Miguel de Allende. The City Public Library’s Board President, Ali Zerriffi, suggested during an informal interview that the non-profit scene in San Miguel is becoming intense, with organizations battling fiercely for the same foreign residents’ dollars (Zerriffi, 2005). Non-profit stakeholders, in any international setting, tend to be less financially stable than government or private stakeholders. However, they are often able to lend expertise and services in social and scientific arenas that greatly benefit projects such as Parque Landeta (Claridge and O’Callaghan, 1997). For example, during Fall 2005 meetings, Save the Laja explained that they were unable to commit to the project because of severe financial difficulties, but there was later group discussion about their participation as paid stream restoration consultants. In the future, when stakeholders such as Save the Laja, FAI and CASA are concerned about their financial situations and feel that they must completely drop out of the project, it is crucial that the entire group discusses creative mechanisms to retain stakeholders’ involvement.

The Parque Landeta planning group has attempted to brainstorm other avenues of funding to decrease the pressure on struggling groups. They have suggested having a large scale kick-off fundraising event for the Parque Landeta proposed projects, private-corporate funding, international grants, and government funding sources other than the City of San Miguel. This creativity is ideal only if these options are actually explored, and if the groups who are struggling the most shift their responsibilities to the direction of researching alternative funding sources for the project.

The most recent financial advancement made in the project has been the State-Municipality award of 2.5 million pesos (250,000 USD) for the 5-year phased construction of the constructed wetland treatment plant. The unfortunate consequence of the financial award has been the discouragement of stakeholders. They are concerned that the greater park project idea will not receive funding and never be realized. The City had originally promised the 1.5 million pesos for the park to be granted in the beginning of 2006. Political and personal tension between certain stakeholders and the City has seriously reduced the possibility that the park funding will be awarded during this calendar year. This occurrence has only highlighted the point of Gerardo Areaga, the Director of the Department of Environment and Ecology, who said during an interview that the stakeholders are relying too heavily on government funding that easily disappears with the fluctuation of federal, state and municipal administrations. He insisted that the groups must find alternative sources of funding, which is becoming increasingly evident with every City Council decision (Arteaga, 2005). Considering the options the actively involved stakeholders have brainstormed, it is recommended that they pursue private donations from the wealthy foreign resident community, many of whom are users of the

park and wish to see more environmental preservation in Mexico. The stakeholders should chase government funding to a lesser extent and instead attract sponsorship from regional and international corporations that are striving to be perceived as more “green” or “community friendly”. Once the Parque Landeta non-profit organization is more financially stable, the organization should consider paying local organizations to consult in stream and wetland restoration and monitoring work.

Female and Youth Participation

The enthusiasm towards the Parque Landeta project that many women from Rancho Amistad demonstrated during the residential and visitor interviews, which was observed by the survey teams, leads to the assertion that female leaders from the colonia may be identified to help to provide representation during planning sessions. Again, it is important to note that the selected director for the Parque Landeta non-profit organization is a female social worker who had previously worked for CASA as an advocate for women and children’s health. Her connections to local social organizations and her personal background could potentially provide gender and youth analysis during all phases of the project. The diagnostic survey results collected for this professional project and for FAI’s use should be reviewed by the future director, as well as by all actively participating stakeholders to evaluate the possibility of future community representation at meetings.

Other than the Rancho Amistad daily users of the park, the users of the natural resources were observed to be female. A middle-aged woman currently grazes her thirty sheep in the riparian areas of the wetland with occasional help from her husband, and a young woman and her mother tend daily to their horses that have been allowed to graze

within the park to reduce grassy fuels that lead to annual fires. These women, at the very least, should be more informed about the park developments and potential impacts on their economic uses of the area. If they are interested, they should attend meetings so that they may give the active stakeholders their valuable perceptions of the park in terms of identified user communities, the state of its environmental services, necessary improvements, and their personal economic uses of the area.

The fact that gendered migration in Mexico exists with males pursuing employment in the United States has significant implications for females and families wanting to participate in community activities that are educational and create feelings of pride towards their region in Mexico and its natural resources. Activities that women and children already perform together, whether it be vegetation cultivation or recreation in their homes and outdoors should be incorporated into participation-related activities within the park.

Chapter IV presented the observation made by survey teams that many women from Palmita de Landeta suggested they would like to participate in the project simply by visiting the park and through showing their support. Simply visiting a local green or recreation area does not require permission from husbands working in the United States. Community outreach to publicize the project and entice women and children to visit the green space must be the next step. FAI and CASA are also in unique positions to become advocates of the park and advertise the project to female clients and youth. By hosting events such as theater or dance performances and creating children's activities, families will have a positive introduction to their community park and begin to feel like owners of the neighborhood green space.

Dr. Bill Fleming and his USAID team evaluating watershed management project sites in Nepal noted in their report, “The team saw women participating in activities that provided them with more income through increased resource productivity” (Fleming, *et al.*, 1988:32). Even as far back as 18 years ago, women’s productivity and economic incentives were observed to increase levels of participation. Parque Landeta-specific opportunities for local economic gain will be discussed in more detail later in sub-sections of this chapter.

Baseline Data, Indicators and Monitoring and Maintenance

Stakeholder Participation in Monitoring

There is now greater attention being paid to the monitoring and maintenance of international watershed management projects following their completion. The foreign residents’ perception during interviews was generally that most Mexico community projects are planned, developed but not maintained or monitored. Colonia Palmita de Landeta residents and park visitors also expressed their concern that the project could potentially be unsustainable because of lack of maintenance. Yet the only realistic way monitoring may take place is if baseline data is gathered before projects are initiated, and upkeep of park infrastructure and wetland restoration projects are only possible when stakeholders have the human resources and knowledge to perform follow up activities.

Plant biologist Walter Meagher of Save the Laja, bird enthusiast Susan Colony of Sociedad Audubon, and El Charco del Ingenio staff have already begun collecting baseline data at Parque Landeta and have agreed to continue to perform volunteer monitoring (Meagher, 2005). Nearly all tree, shrub and grass species have been identified, as well as bird species with approximate seasonal populations. El Charco del

Ingenio staff are familiar with reservoir and stream levels and flows and they have a general sense of the natural history of the area and park uses. The significant gaps in baseline data include water quality information, soil and substrate data to ensure that marshland construction and wetland restoration activities are feasible, and a reliable investigation to determine the pre-project visitor numbers.

Various active stakeholders have volunteered to collect soil samples that may be sent to university labs in the United States or Mexico for analyses. The State Water Commission suggested that with a small financial contribution from the City, they can begin performing water quality tests and analysis prior to the construction of the wetland treatment plant (Silva Godoy, 2005). However, now it becomes a question of who will organize these activities.

Numerous board members, staff, volunteers and members of the active stakeholder organizations currently visit Parque Landeta and El Charco del Ingenio with high frequency for various activities including exercise, bird watching, dog walking and relaxation. These stakeholders should now begin to perform “passive monitoring” of the site, which may include photographic documentation of the site or written observations of the number of visitors, recreation activities, bird species, vegetation health, water levels and other smells and sights. This will lend to future adaptive management and maintenance techniques that are necessary in any wetland restoration project or conservation effort.

Identified Indicators and Appropriate Monitoring Programs

Before a monitoring program can begin, project indicators must be identified after baseline data has been collected. The interviewed stakeholders identified examples of

appropriate socioeconomic and biological measurable target criteria or indicators to ensure the sustainability of the Parque Landeta project, which are the following:

- There are diverse, long-term, reliable sources of funding for the Parque Landeta organization's infrastructure, staff and activities; the organization has the capability to save money due to high levels of efficiency
- Local stakeholders are participating in the project through visitation, labor, donations, traditional knowledge, economic activities, general support or educational activities; women's and youth's involvement has increased
- The number of visitors has grown, in addition to the diversity of visitors' backgrounds and origins
- The greater wetland site shows vegetation uniformity and there is sufficient ground cover following passive restoration; upland native vegetation appears healthy and the number of noxious weeds and invasive species has decreased
- After the constructed wetland treatment plant and enhancement marshland area have stabilized following construction, water quality tests results show improvements
- Three-year soil samples show no signs of serious contamination
- The new recreation facilities are clearly being used with clear evidence of wear and tear
- The number of programs directed by stakeholders that take place at the park has increased

A variety of monitoring programs could be implemented to consistently evaluate the above target criteria. Monitoring programs incorporating student and youth field

programs often successfully integrate classroom instruction with outdoor social or environmental monitoring activities (Fleming and Henkel, 2001). The high school student participants expressed their eagerness toward participating in future science or social science related field activities to help with the Parque Landeta planning and monitoring. These same twelve students can also now be trained by the stakeholder organizations' staff and board member experts in the techniques of wetland and stream-riparian area surveying. The employees of Parque Landeta, in conjunction with local schools, can potentially create a scheduled and organized monitoring program, which should integrate community outreach activities to stimulate participation from the neighboring colonias. Once trained and experienced, these students can pass on their knowledge to local stakeholders or future high school classes needing volunteer hours.

Educational and Awareness Programs

Wetland and Environmental Education

The Proyecto Educación Ambientas San Miguel de Allende, or the Environmental Education Project of San Miguel de Allende (PEASMA), has recently been developed by two graduate students from Spain, Eugenia Velasco and Natalia Oretaga. The program, which will be introduced into local school curricula this year, has prominent community stakeholder organizations involved in the instruction of environmental science topics ranging from water quality and avian habitats to watershed management and community participation (Velasco, 2005). Instruction begins in school classrooms and is later brought to field sites, one of which will be Parque Landeta because of the diverse wetland habitats and upland vegetation attributes.

The same five non-profit organizations and City authorities currently involved in the Parque Landeta project have also promised to participate in the PEASMA activities. The PEASMA objective is to “educate future generations of the municipality in the care, love and respect of the natural and cultural environments” (Velasco and Oretega, 2005). The overlaps and similar goals between the two projects creates an ideal atmosphere for collaboration, and can potentially become a model for the State of Guanajuato school systems and Mexico during this period of time when the nation wishes to appear more “green” and environmentally conscious. Moreover, PEASMA has already received a funding guarantee from the State, and if successful, the environmental education program will be implemented throughout the region.

Parque Landeta and its proposed environmental and recreational activities may receive more positive and needed publicity and community participation if the majority PEASMA field workshops take place at the park, a site that will have a treatment plant, restored wetland resources, diverse avian and wildlife habitats, plant nurseries and safe trails. Moreover, thousands of children from the local and greater community could be introduced to the park or “green area”, which would inevitably lead to increased future use assuming the park is adequately maintained and natural resources are preserved.

Wastewater Treatment Awareness

The Director of Public Works for the small town of Santa Catarina, Guanajuato stressed that the largest problems with their newly constructed wetland water treatment plant are the garbage and plastics that passes through pipes into the plant fouling up pump systems, and the air-bound plastic bags that float into the primary wastewater treatment facility (Ramirez, 2005). He also mentioned that outreach and educational

programs have been discussed that would address local water contamination issues related to small, local, residential businesses.

The Santa Catarina constructed wetland treatment plant serves as a reference site for the planning process of the proposed Parque Landeta plant. All concerns and advice that authorities provide to Parque Landeta stakeholders should be taken seriously and integrated into the overall plan for the park and treatment plant. Engineer Jose Ramirez Cabera suggested during an interview that a community education-outreach program would be appropriate to educate the public about their water treatment facilities, maintenance needs and residential responsibilities that include decreased introduction of organic and non-organic materials into the system. Solid waste management and augmented public consciousness is also needed to curtail the amount of airborne trash and plastic bags.

It is recommended that the Parque Landeta staff and board members perform door-to-door outreach in the Colonia Palmita de Landeta neighborhoods to educate them about their brand new water treatment system including the benefits, maintenance and responsibilities. The fenced-off constructed wetland and primary treatment plant area should have visual displays that demonstrate how the plant and wetland function, the ecological and socioeconomic benefits, and the daily actions of Palmita de Landeta residents that will ensure the treatment project will be financially and ecologically sustainable.

It is imperative that the stakeholders, new staff and board members of the Parque Landeta organization also visit the reference site in Santa Catarina. Mario Hernandez during an interview explained, “I think the board should be more interested in what the

plant will be and its effect on water quality... it's like they aren't even aware, they just think it's a good idea" (Hernandez, 2005). Every person associated or concerned about the constructed wetland treatment facility must learn more about the technologies, maintenance requirements and ecological impacts prior to construction.

Information and Technology Transfers

Meaningful and sustained linkages with similar regional initiatives, such as the project in Santa Catarina, lead to information and technology transfers related to the proposed constructed wetland treatment plant. Unfortunately, these transfers are not passing freely between Parque Landeta stakeholders in a number of areas, not just the wetland site. On many occasions information is shared but not interpreted by the source or experts, which results in stakeholders' inability to appropriately respond. The World Bank states that a "right to information" exists, as explained in the following quotation:

Participation is a function of information through which people come to share a development vision, make choices, and manage activities, to achieve this, information must flow from government in ways that genuinely support people's informed participation... The following questions are relevant: Is there an obligation on the part of the implementing unit to ensure that stakeholders are provided with adequate and relevant information? Is such information provided in a meaningful manner, that is, in a form that can be readily understood by relevant stakeholder groups? (The World Bank, 1996:174)

There is general consensus from active stakeholders and the City that it is the municipal Department of Environment and Ecology's responsibility to pass along all new information in a timely manner, which is not currently taking place and must change. Moreover, if the information can not be explained by the City authorities, the individuals responsible for the technological or socioeconomic knowledge must be invited to instruct

the group during a planning session, perhaps using displays or other materials that are simple and relevant.

The current mechanism used to distribute information is through email, which also may need to change when local resident-visitor stakeholders are invited to join meetings because socioeconomic constraints may surface or the participants may not have immediate Internet access. Lastly, during meetings the facilitator, normally a San Miguel City representative, must be positive that all participants are on the same page and comprehend all new information or technologies by asking appropriate questions and by addressing communication barriers such as gender or cultural constraints evident during group sessions. By requesting private or confidential written or vocal feedback, the City authorities may address questions that participants may be embarrassed or reluctant to ask.

Self-Perpetuating Practices- Community Opportunities for Sustainable Income

The International Food Policy Research Institute believes that simply giving communities information for a “beneficiary” level of participation is not sufficient to “get user buy-in, nor generate a self-perpetuating process of continuous innovation on the part of users” (Johnson, *et al.*, 2001:17). When watershed projects provide communities like Palmita de Landeta the opportunities to generate personal incomes, learn about profitable mechanisms to protect natural resources, and visit demonstration sites to learn about new technologies that they may use at their own homes, there is a higher potential for user buy-in and personal empowerment.

The director interviewed from CASA recommended that the Parque Landeta stakeholder group contact local women’s groups such as Mujeres Productoras, A.C., who

have already formed relationships with families in the community and provided women the skills and knowledge to produce textile and agricultural products to sell in the local market. This particular organization's objectives are explained below:

Mujeres Productoras arose from the desperate need among rural women to contribute, and in many cases, take complete responsibility for the economic well-being of their families... the women themselves are the directors and producers, making this work a source of training and income...this work has been and is recognized by the communities and municipalities, giving the women more self-esteem and serving as a good example for future generations of sons and daughters (Mujeres Productoras, 2005).

Currently the participating women are cultivating and designing products in their homes and gardens. Parque Landeta could possibly provide a substantial amount of land for cultivation and increased production. One of the most important agricultural products is the nopal cactus, in particular the fruits (tunas), stems (nopalitos) or prickly pears (opuntia) of the plant. Women from the local community have been discouraged from harvesting the nopal cactus from the Botanical Gardens of El Charco del Ingenio. Thus, cultivation and harvest can be transferred to the neighboring Parque Landeta area. Other agricultural products that may be pursued at the park for local income generation are Alcatraz flowers, which are popular wetland plants that remove water pollutants, and trees that can be purchased and planted in the neighboring communities, because during surveys residents explained that the Colonia lacked vegetation.

The director of CASA also suggested that demonstration sites for plant and tree cultivation would be ideal at Parque Landeta because of the severe problem of tree die-off due to the lack of knowledge about appropriate native species and plant care. Irma Salas suggested, "Bring the park to the people" (Salas, 2005). She claims that the women of the Colonia are "lazy" because they receive monthly checks from their husbands in the

United States and may not be interested in participating in the traditional sense. Instead, the park and tree experimentation and knowledge should be brought to the families in order to: 1) introduce the park to the community stakeholders; 2) improve overall residential vegetation choice and management; 3) invite the families to explore tree and plant demonstration sites; and 4) identify eager participants in the Parque Landeta project and park activities.

If the cultivation of agricultural products occurs (nopal cactus products, wetland Alcatraz flowers, trees, etc.) or textile products created (baskets, embroidery, handcrafts, etc.) a space should be constructed where products may be sold. El Charco del Ingenio has an on-site store that has been very successful, in that items and products are made by individuals, cooperatives and organizations located throughout Guanajuato. The Parque Landeta shop would not be in direct competition with El Charco because the products sold would be from park resources, made by residents in the immediate vicinity of the park, and women and children would be the primary producers.

It was mentioned in the results section of Chapter IV that most Colonia Palmita de Landeta residents interviewed expressed that employment opportunities would benefit both the community and natural resources. If local residents are employed at the parks, the level of participation and family visitation are predicted to increase dramatically. Also, the idea has been informally presented that the woman and her husband tending to their thirty sheep near the water's edge should be first offered employment at the park. These two people already have a significant amount of knowledge pertaining to the park's and wetland's history, community use patterns and environmental services. The

women/families who care for their horses in the park may perhaps be requested to continue their activities with some supervision for grass and weed control purposes.

Finally, it has been discussed previously in this paper that there are opportunities for paid consultant work to initiate stream and wetland restoration activities, and community assessments and outreach. Inactive stakeholder organizations with financial obstacles deterring their participation in the project should be offered consultation pay for their services.

VI. RECOMMENDATIONS AND CONCLUSION

The most obvious question that has surfaced during this professional project research and writing is this: Why are the stakeholders proposing to build recreation facilities at Parque Landeta when the infrastructure already exists a quarter of a mile away in the well-groomed and cared for Manuel J. Clouthier Recreation and Sports Park? Just before departing San Miguel, this question was asked of active stakeholders and leaders in the Parque Landeta project and most people were dumbfounded because they had no idea that another park existed nearby. This demonstrates how unfamiliar the stakeholder organizations are with the surrounding colonias and their cultural resources.

A large area within Parque Landeta was originally designated a “green space” for Colonia Palmita de Landeta. The commonsense approach that has yet to be explored is to maintain Parque Landeta as a local natural area or green space while developing the important community-requested recreational activities (a large playground, skatepark and soccer field) at the existing Manuel recreation park.

A significant result of the surveys is that a large number of residents, children and visitors suggested that they enjoy Parque Landeta in its current state, with the exception of the litter, dry grasses and the lack of security, bathrooms and water. Clearly security is important for the visitors and residents, so both the recreational and green space areas should have a daytime protection force. The community green space should also remain fee-free because a park cover charge would be pivotal in shaping the communities' perception of the park and would complicate the lives of Rancho Amistad residents. The picnic-grill areas should be maintained because of their popularity. Car traffic should no longer be allowed within the park and access to Rancho Amistad should remain foot transportation on existing trails because of potential severe degradation of wetland services with any kind of road infrastructure.

The City and active stakeholders should also continue their efforts in the federal protection of the entire area that includes the upstream and downstream reaches of the reservoir Presa de Las Colonias. This may in fact be the first actualized goal of the future Parque Landeta board because creating a government-protected ecological zone does not require funding, unlike the rest of the ambitious projects proposed for the park. This protected status will finally eliminate all proposed and potential sub-division development (primarily planned by ex-patriots) within the ecological buffer zone.

Another step during the wetland and park planning processes is inviting local community representatives to the planning sessions, namely park visitors and Rancho Amistad residents, because currently not a single person from the surrounding colonias is attending meetings. Although their voices have been heard through the recent diagnostic surveys performed for this professional project, they must have a presence on the newly

formed board of directors and have access to information that needs to be dispersed to their communities. As it is, only one resident surveyed mentioned that they were aware that Parque Landeta was going to be “improved”, and no one knew about the proposed water treatment facility.

In addition to leaders representing the communities’ needs, the park should be brought to the people of Colonia Palmita de Landeta, as recommended by one of the directors at CASA. There is no one recipe that guarantees high levels of participation, as stated on the very first page of this paper by the USAID team. Instead, mechanisms to encourage participation and appropriate levels and forms of participation need to be uncovered on a case by case basis. The active stakeholders’ perception of the Colonia Palmita de Landeta is that the families and women will not be active participants because they receive money from men in the United States, are new to the neighborhood and not invested in their community, and are too busy with domestic responsibilities. Thus, in this situation participation from Colonia Palmita de Landeta residents may be through environmental education initiatives such as PEASMA, demonstration site educational activities and increased visitation, rather than through “traditional” means such as labor, active outreach or direct economic incentives.

If the Colonia’s participation happens to be through visitation, on-site education and demonstration sites, the author recommends that the park entrance areas and trails are constantly groomed and maintained by staff and stakeholder volunteers. A 2004 study performed by Joan Iverson Nassauer discovered that visitation at wetland restoration sites increases if a wetland resource area is perceived by the community as being maintained or mirrors the grooming of other metropolitan parks. Nassauer’s study:

In a project monitoring restored and reference wetlands in Minnesota, USA, we addressed the question of how the perceptions and expectations of the public could affect ecosystem recovery...A central premise of this investigation of cultural perceptions is that, in a world dominated by humans, landscapes that are perceived as attractive are more likely to be sustained over time by human behavior...Data suggest that perceived safety or seeing a place as good for children's play is related to attractiveness only for neighbors of wetland sites... Design strategies that frame wetland restorations with the appearance of familiar cultural cues, that introduce structures for viewing open water to match cultural values without turning restored wetlands into tidy ponds, that use signs to help people appreciate the natural processes they are observing-all may help people appreciate the new forms of natural beauty offered by wetland restorations (Nassauer, 2004:756-763).

The quotation above reflects the perceptions and interests of the neighbors and visitors at Parque Landeta, in that many people enjoy the tranquillity, open water, birds and aesthetic beauty at the park, but dislike the litter, weeds, and lack of security. Specific recommendations to provide for cultural sustainability at the site include the following: design the wetland to provide habitats to draw birds and wildlife to the area, mow the entrance ways and sides of paths to create a groomed atmosphere, provide security staff during the day and secure the park during the night, create elevated structures around the wetland to allow visitors to observe wetland services and avian populations, manage vegetation to add color, plant density, diversity, and familiarity to the landscape, construct many relative displays and signs to direct people to significant park amenities and to describe wetland and ecological services and treatment plant design.

Lastly, it is crucial that the wetland restoration and park projects are a part of a holistic watershed management approach. Little attention has been paid to upstream watershed issues that have caused water quality and quantity problems, nor the potential downstream impacts resulting from park and wetland manipulations. From the beginning of the planning phase of the project, the active stakeholders should have been asking

questions such as: Why is wetland water quality suffering? Why have the water levels continued to drop in the reservoir? Which upstream cultural and socioeconomic constraint may impact these projects in the near or distant future? What watershed management activities have been performed or are proposed upstream by the government, environmental organizations or local communities, and can communication or networks be developed with these groups? Unless these fundamental questions are answered and greater watershed problems are identified, the wetland restoration efforts and upland park developments will be culturally and ecologically unsustainable.

GLOSSARY

Community Participation: A process by which the government and civil society open dialog, establish partnerships, share information and otherwise interact to design, implement, and evaluate development policies, projects and programs...that require the involvement and commitment of all interested parties, including among others the poor and traditionally marginalized groups, especially disadvantaged racial and ethnic minorities (Sustainable Development Department, 2000:2)

Constructed Wetland: Wetlands that use the ecological processes of soils, plants and microorganisms found in naturally formed wetlands to remove municipal and agricultural wastewater pollutants. They are typically used to remove suspended solids, BOD and nitrogen, but may also be used to remove a number of metals such as zinc, chromium, iron, toxic organics, lead, cadmium, selenium and manganese (EPA/625/R-99/10:31)

Ejididos: Agrarian communities in Mexico, established beginning in the 1930's, in which land and water resources are held as common property with private usufruct rights (Scott and Silva-Ochoa, 2001:5)

Empowerment: A process through which individuals, as well as local groups and communities, identify and shape their lives and the kind of society in which they live... Empowerment means that people are able to organize and influence change on the basis of their access to knowledge, to political processes and to financial, social, and natural resources (Slocum, *et al.*, 1995:4)

Enhancement Marshland: Also referred to as polishing wetlands, enhancement marshlands are designed to benefit the community with multiple uses, such as water reclamation, wildlife habitat, water storage, mitigation banks, and opportunities for passive recreation and environmental education; this system can be designed as separate system, or important attitudes of constructed wetlands and enhancement marshlands can be integrated into a single design with multiple treatment objectives (EPA/625/R-99/10:32)

Gender Analysis: Focuses on understanding and documenting the differences in gender roles, activities, needs, and opportunities in a given context and involves the disaggregation of quantitative or qualitative data by gender in order to highlight the different roles and learned behavior of men and women based on gender attributes, which vary across culture, class, ethnicity, income, education and time

Qualitative Research: a situated activity that locates the observer in the world, it consists of a set of interpretive, material practices that makes the world visible, which are practices that transform the world and turn the world into a series of representations, interviews, conversations, photographs, recordings and memos of the self (Denzin and Lincoln, 1994:3)

Stakeholders: Individuals or groups with separate interests and/or contributions for the management of a wetland, with a particular focus on interest groups within local and indigenous communities and the government agencies responsible for wetland management (Ramsar Convention Bureau, 1999:4)

ACRONYMS AND ABBREVIATIONS

CASA- Centro para los Adolescentes de San Miguel de Allende

CEAG- Comisión Estatal de Agua Guanajuato (Guanajuato State Water Commission)

FAI- La Fundacion de Apoyo Infantil Guanajuato (Save the Children, Guanajuato)

PEASMA- Proyecto Educación Ambientas San Miguel de Allende (Environmental Education Project of San Miguel de Allende)

SAPASMA- Sistema de Agua Potable y Alcantarillado de San Miguel de Allende (San Miguel de Allende Potable Water and Sewage System)

WHI- Water Harvesting Irrigation

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APPENDIX

Community and Visitor Surveys:

ENTREVISTA PARA LA INVESTIGACIÓN DEL PARQUE LANDETA- CASA

*Recordar a las personas entrevistadas que es una encuesta anónima y por esa razón no necesitamos que nos proporcionen sus nombres.

I Población

1. ¿Cuántas personas viven en esta casa?
2. ¿Por cuánto tiempo han vivido aquí?
3. ¿Cuántos son mayores de edad y cuántos menores?
Menor _____ Mayor _____
4. ¿A qué se dedican? Especificar.

II Medio Ambiente

1. ¿Qué considera se debe hacer para mejorar el medio ambiente en San Miguel de Allende?
2. Cuándo salen de día de campo, de excursión ó de paseo con la familia ¿a dónde van?
3. ¿Sabes qué es un humedal ó una ciénega? ¿Para qué sirve (qué función tiene)?
4. Nombra las plantas que conozcas por esta zona
5. Nombra los animales que sepas que hay por esta zona
6. ¿Sabes qué tipo de aves viven por esta zona?

III Parque Landeta

1. ¿Ha escuchado del Parque Landeta?

SÍ/¿Dónde esta? _____

¿Lo ha visitado? _____

Si/¿Durante el 2005 cuántas veces considera que ha visitado el parque?

0 veces _____ 1-4 _____ 5-10 _____ 11 o más _____

No ¿Por qué no lo ha visitado? _____

¿Qué actividades se llevan a cabo ahí?

¿Conoces a alguien que haga uso de los caminos, lago, de los árboles y/o otros recursos del Parque? ¿Qué actividad realiza?

No/ Se le indica dónde esta y brevemente qué es (Anexo 1).

2. ¿Qué actividad deportiva o recreativa le gusta a usted, a sus hijos ó hermanos?
3. ¿Alguna vez ha acampado? ¿Dónde?

4. ¿Alguna vez has visitado el Jardín Botánico Charco del Ingenio?

Si /¿Durante el 2005 cuántas veces considera que ha visitado el Charco del Ingenio?

0 veces _____ 1-4 _____ 5-10 _____ 11 o más _____

¿Por que?

No

¿Por que?

IV Explicación del Proyecto que hay para el Parque

* Explicar el resumen del proyecto.

Preguntas una vez explicado.

1. ¿Le gustaría participar en el desarrollo del Parque Landeta?

Sí

¿Cómo podría usted participar con el Parque Landeta?

No

¿Por que?

2. ¿Cree que a la gente de la colonia le interese participar en actividades educativas sobre el medio ambiente?

3. ¿Qué le gustaría que tuviera el Parque Landeta?

4. ¿Qué servicios les gustaría que hubiera?

5. ¿Cree que se debería cobrar alguna cuota para el acceso al parque?

Sí/cuánto

No

6. ¿Cree que en el futuro las personas de la colonia tengan interés por trabajar en el Parque?

Si / ¿por que?

No / ¿por que?

Anexo I

El Parque Landeta es una propiedad municipal en donde se pretende desarrollar una Zona de Preservación Ecológica, a través de la participación de organizaciones de la sociedad civil, en conjunto con dependencias municipales.

ENTREVISTA PARA LA INVESTIGACIÓN DEL PARQUE LANDETA-VISITANTES

*Recordar a las personas entrevistadas que es una encuesta anónima y por esa razón no necesitamos que nos proporcionen sus nombres.

I Población

5. ¿Viniste al parque con tu familia?
Si / Menor _____ Mayor _____
No / Solo _____ Acompañado _____
6. ¿Dónde vives?
7. ¿A qué se dedica? Especificar.

II Medio Ambiente

7. ¿Qué lugar frecuentan más cuándo salen de día de campo, de excursión ó de paseo con la familia?
8. ¿Sabes qué es un humedal ó una ciénega? ¿Para qué sirve (qué función tiene)?
9. Nombra las plantas que conozcas por esta zona.
10. Nombra los animales que sepas que hay por esta zona.
11. ¿Sabes qué tipo de aves viven por ésta zona?
12. ¿Qué opina del medio ambiente en San Miguel de Allende?

III Parque Landeta

5. ¿Durante el 2005 cuántas veces considera que ha visitado el parque?
1 veces _____ 2-4 _____ 5-10 _____ 11 o más _____
6. ¿Conoces a otras personas que hacen uso de los caminos, lago, de los árboles y/o otros recursos del Parque? ¿Qué actividad realiza?

7. ¿Qué te gusta del parque?
8. ¿Qué no te gusta del parque?
9. ¿Qué actividad deportiva o recreativa le gusta a usted, a sus hijos ó hermanos?
10. ¿Alguna vez ha acampado? ¿Dónde?
11. ¿Alguna vez has visitado el Jardín Botánico Charco del Ingenio?
Si /¿Durante el 2005 cuántas veces considera que ha visitado el Charco del Ingenio?
 0 veces _____ 1-4 _____ 5-10 _____ 11 o más _____
 ¿Por que?
- No**
 ¿Por que?

IV Explicación del Proyecto que hay para el Parque

* Explicar el resumen del proyecto.

Preguntas una vez explicado.

7. ¿Le gustaría participar en el desarrollo del Parque Landeta?
Sí
 ¿Cómo podría usted participar con el Parque Landeta?
- No**
 ¿Por que?
8. Que tanto le interesa participar en actividades de educación ambiental en esta zona, usted esta ...
 Muy interesado _____ Interesado _____ Poco interesado _____ No me interesa _____
9. ¿Qué le gustaría que tuviera el Parque Landeta?
10. ¿Qué servicios les gustaría que hubiera?
11. ¿Cree que se debería cobrar alguna cuota para el acceso al parque?

Sí/cuánto/persona _____

No _____

Anexo 1

El Parque Landeta es una propiedad municipal en donde se pretende desarrollar una Zona de Preservación Ecológica, a través de la participación de organizaciones de la sociedad civil, en conjunto con dependencias municipales.

Elementary School Interview Forms, Palmita de Landeta Elementary School:

- 1- ¿Cuántos años tienes?
- 2- ¿Cuántas personas viven en tu casa?
- 3- ¿Has visitado el Parque Landeta?
- 4- ¿Cuántas veces?
- 5- ¿Qué te gusta del parque?
- 6- ¿Qué no te gusta del parque?
- 7- ¿Qué te gusta que hubiera en ese Parque?
- 8- ¿Alguna otra cosa que quieres decirnos sobre el Parque Landeta?
- 9- ¿Si hubieras talleres de educación ambiental importando por FAI o CASA, te gustaria ir? Si o No.